Yura Perov

Contact Information *E-mail:* `yuraperov@gmail.com`

LinkedIn `https://www.linkedin.com/in/yuraperov/` *(including 50+ recommendations)*

Short Bio

- A Chartered Scientist, Chartered Mathematician, Chartered Engineer, Member of the Institute of Mathematics and its Applications (MIMA), Professional Member of the British Computer Society (MBCS).
- Worked, e.g., as a Principal Research Scientist, Senior Research Scientist, Head of AI & Research Innovation.
- Many years of work in digital health and healthcare (but not only).
- Strong academic background including publications at leading AI/ML conferences, reviewing (e.g., for NeurIPS with recognition as one of the top reviewers) and top academic performance.
- An experienced Artificial Intelligence, Machine Learning & Data Science professional and software engineer with management experience.
- Worked on projects, researched and studied Computer Science, AI, Mathematics and Economics at Oxford, MIT, EPFL and Siberian Federal University. A Master of Science by Research from Oxford University (UK) and a Bachelor's degree in Mathematics from Siberian Federal University (Russia).
- Contributed to the creation/development of several probabilistic programming languages[1]/systems.
- Focus on probabilistic/generative modelling, interpretable & explainable AI, causal modelling & inference, probabilistic programming, simulation, Bayesian inference, as well as some computer vision, NLP and large language models.
- Led projects and teams in different roles (including as Squad Lead, Technology Officer, Executive Officer, Project & Team Lead, Head of AI and Data Science, Head of AI & Research Innovation). Co-founder in two start-ups.
- Many years of academic and industry experience, including Proverim.com (2007–2012), Siberian Federal University (2008–2014), EPFL (2012), MIT (2012–2013), Oxford (2013–2016), Invrea (2016), Babylon (2016–2020), EQL (2020–2021), Babylon / eMed (2021–2023) and Spectrum.Life (2024).
- A proven track record of architecting and co-leading implementations of AI & ML products and solutions that have been used around the world.
- Well-developed software engineering skills (including experience with Python, Clojure, C++, JavaScript, Git, GCP, AWS & Azure, SQL, Excel with VBA, CI/CD). Experience with Agile.
  - ★ The 'Expert' level for all five Skill Areas ('Code Implementation', 'Data Structures & Data Processing', 'Refactoring & Encapsulation', 'Problem Solving' and 'Software Design Patterns') for an Industry Coding Framework[2] assessment (CodeSignal) in November 2023.
  - ★ HackerRank's certificates for: SQL (Basic, Intermediate, and Advanced), Rest API (Intermediate) (the highest available there), Software Engineer. Solved all 53 'Hard' and 122 'Medium' 'Database' problems on LeetCode using MySQL ‡.
- Privacy (GDPR and HIPAA) and security knowledge and skills.

[1] `https://en.wikipedia.org/wiki/Probabilistic_programming`

[2] From CodeSignal's website (a page link): "The Industry Coding Framework assesses the skills of mid- to senior-level software engineers that have industry experience".

Relatively Recent Employment & Activity

Integral Verity Ltd (from London, UK)
October 2025 – *present*

Science and Engineering Manager, Co-founder. Providing consulting services in AI, ML, Data Science & Software Engineering. Have been working with one client (AI & Healthcare). **Open for new clients.**

Independent Contractor (from London, UK)
April 2025 – June 2025

Working with one client, a non-profit applied AI research organisation.

Process automatisation with large language model technology, for recruitment. General project advice, software engineering, mock data generation, research work and experimentation. Using Google Cloud, including Google LLMs; Google Cloud compute; Ashby; Julia & Python, Docker, VirtualBox. Privacy, copyright and legal matters.

Spectrum.Life, from London, UK
February 2024 – December 2024.
Head of AI & Research Innovation.

About the company: "Digital health, mental health and wellbeing"[3], 300+ staff members. The employment ended due to the role's redundancy.

AI/ML strategy (including considering and for choosing between different projects, team structure and team integration within the company), AI/ML projects, software engineering, proof-of-concepts (with demos; produced), preparing a feature for production (although it has not reached it), product work including user journey work, business process work, planning, privacy including GDPR, reviewing terms for third-party services to the company, risk management, collaboration with internal stakeholders (project, product, clinical, technology, privacy, legal work and matters) and work with external parties (for both client and supplier relationships). Project areas included: digital health including digital mental health, bidding / proposals, analytics.

Technology / similar: LLM (Anthropic) and embeddings (Cohere), experimentation and testing with LLM(s), search and text generation with embeddings and an LLM (with retrieval-augmented generation), 'deterministic' (without LLMs) text generation for describing data (for analytics), AWS (including SageMaker, Bedrock, Lambda and API Gateway), Python, Tableau (including using Tableau's 'Analytics Extensions' feature with successfully creating such an extension backend, and using Tableau's REST API), PHP, MariaDB, Docker, HTML, JavaScript.

Babylon Health[4], London, UK
April 2021 – October 2023.
Principal Research Scientist.

A senior member of Applied Sciences working across different projects. Reporting to Chief Science Officer.

Line managed 2 people.

Involved with 7+ projects/'areas':

1. Advisor project for Clinical Support with Knowledge Representation, Graphs, Ontologies —

[3] From: `https://www.spectrum.life/`
[4] Employed by eMed / 'EMED HEALTHCARE UK, LIMITED' since a day in August 2023.

designed as a system, a foundation for both Babylon 360 (directly for patients) and Babylon Cloud Services (for organisations' users), to provide evidence-based clinical advice that is consistent with other services that Babylon is developing, to improve patient outcomes. Included code representation and evaluation of parts of clinical knowledge (e.g., guidelines). I have been one of the science leads and a contributor.

2. Modelling for predictions that can help with billing and information 'gaps' for care, potentially. Have been contributing and overseeing.
3. Health Economics Simulation. Contributing as part of the team.
4. Helping a person (i.e., an app user) understand their health situation; What-If-Like modelling. Supporting and co-overseeing.
5. Triage / Symptom Checker (indirectly; via line management).
6. Early discovery work in relation to supporting appointment booking (matching) for a person (an app user).
7. Work with large language models.

Project work has involved:

- Data Science, ML / AI (e.g., logistic regression, recommender systems, collaborative filtering, language model technology), Simulation.
- Working with Research/Data Scientists, Product, Engineers, Healthcare professionals, Population Health Sciences colleagues (including epidemiologists), Privacy, Legal.
- Architecture work. Presentations. Project (management) work. Hiring and work (with others) on job descriptions for Applied Sciences. Assistance to legal (patents/patent applications). Document review. Meetings with (potential) suppliers/partners. Supporting content (guideline) procurement. Internal data access work (as a consumer, getting access to and using data). Hierarchical condition category coding. Schema definition work. Privacy including HIPAA.
- Software engineering and software deployment. Python, C++. GraphQL. FHIR. Google Cloud.

One of the seven 2022 Compliance Champion nominees at Babylon.

AI for Musculoskeletal medicine topic group, a part of the International Telecommunication Union / World Health Organisation focus group "AI for Health"
October 2020 – March 2023.
Role: Topic Driver & Member[5] (moderating and contributing to the work of the topic group).
November 2022[6]: there were 12 members of the topic group; I was one of the topic drivers.

Professional Designations & Memberships

- Chartered Mathematician (CMath)
- Chartered Scientist (CSci)
- Chartered Engineer (CEng)
- Member of the Institute of Mathematics and its Applications (MIMA)
- Professional Member of the British Computer Society (MBCS)

[5] Stopped being a topic driver in March 2023. The request to stop being a member was sent in April 2023.
[6] When an updated document for the Topic Group was submitted for Meeting Q of the Focus Group.

Previous Employment

EQL, England, UK
April 2020 – April 2021.
Head of AI and Data Science.

Leading and contributing to the AI & Data Science work and projects, defining and implementing the AI & Data Science strategy and roadmap of the company with other stakeholders, for MSK / Physiotherapy digital healthcare projects. Led / involved in hiring for different roles. Software engineering.

Supervised two colleagues and co-supervised another one, for some time.

Contributed to:

- materials used to update investor(s) of the company and for securing a next round of investment,
- project planning, business planning and finance planning,
- setting up formative usability evaluations,
- work on health economics,
- work on clinical data exchange.

Led and contributed to AI & DS project development / prototypes:

- Co-led the project: Augmented reality & computer vision for assistance of physiotherapists in online sessions with patients and for patients' self-management, using AI/ML models.
  - Minimum 8 people involved in the project overall.
  - The project involved a collaboration with a big healthcare provider in the UK
  - Applied for funding for a part of the project, received the funding and delivered that part.
  - The project involved technical, healthcare and product work.
- Led the project: Triage and diagnostics for MSK / Physiotherapy.
  - Minimum 10 people involved in the project overall.
  - The project included technical, healthcare and product work.
  - On this project another work was based that I co-led: Urgent MSK / Physiotherapy Triage for A&Es.
- Exploration and demo/prototype use of speech-to-text, text-to-voice and translation technologies, and computer vision for MSK / Physiotherapy.
- Co-led: Identifying movement deficiencies as well as optimising and supporting patient exercise plans with augmented reality and with the use of computer vision and AI/ML algorithms/models including prediction algorithms.

Performed data science analysis of related third-party data on accidents and treatment sessions and worked with the company's production data.

Working and meeting with existing / new clients, with potential partners, and partners / related third parties / advisers, as part of the team.

Participated in and contributed to the regulatory work for EQL (for a product's CE marking, clinical evaluation plan and clinical validation plan work).

Related technologies & approaches involved in work and explored for projects: Google Cloud Platform, Python, HTML, JavaScript, Git/GitHub, JIRA, Google APIs (e.g., in terms of using translation, speech-to-text and text-to-voice; and in terms of exploring Google ML services),

chatbot, knowledge base and as part of that on model/data representations, decision trees, computer vision, pose recognition and movement recognition (using state-space-like models, and state machines/automata approaches), augmented reality, continuous learning and validation.

Babylon Health, London, UK
July 2018 – April 2020.
Senior Research Scientist.

October 2016 – June 2018.
Bayesian Data Scientist / Research Scientist.

Combining roles of a research scientist and a product and delivery co-lead. Contributed significantly to numerous prototypes and implementations of multiple AI products. Co-leading the development of the artificial intelligence product for triage and diagnostics for primary care.

The triage and diagnostics product has been one of the key products and used globally in multiple developed and developing countries across the globe. It was used by Babylon Health and partners including Samsung and Prudential.

Squad Co-Lead[7] for an applied AI research squad (focused on modelling, statistical inference and efficient AI-supported decision making), with 18 people (including me) contributing to the projects of this team. Was leading the development and implementation of scientific innovations that significantly improve the quality as well as reduce the cost of using the product *(more than 50 times)*. These solutions were deployed and used in production.

Leading work on a project for the International Telecommunication Union / World Health Organisation's Focus Group "Artificial Intelligence For Health", as well contributing to the partnership with University Hospitals Birmingham.

Worked on a version of a symptom selector (to allow a user to input their initial information) used in production and developed a prototype of using the BERT Transformer model for medical text application.

Contributing to the work on material preparations and participating in the presentations for commercial partnerships and investment fundraising.

Publications

See my Google Scholar profile: `https://scholar.google.co.uk/citations?user=xjXQBqkAAAAJ`.

Education / Qualifications

City, University of London
October – December 2019.
Short course "Leadership and Management: an Introduction".

Oxford University, Department of Engineering Science, Wolfson College, Oxford, UK
October 2014 – May 2016.
Master of Science by Research *(this full-time MScR generally requires 2 years of research)*. Studies and research in Machine Learning and Artificial Intelligence, in particular in Probabilistic Programming. Supervised by Prof. Frank Wood. Master's thesis "Applications of Probabilistic Programming". This research degree is not graded with Merit or Distinction. With funding including the tuition (at the overseas rate) and maintainance.
Examiners: Prof. Nando de Freitas (mid-term), Prof. Michael Osborne (mid-term and final), Prof. Zoubin Ghahramani (final).

[7] See `https://www.mckinsey.com/business-functions/organization/our-insights/the-agile-manager` for details on management structure in Agile Development.

Oxford University, Department of Engineering Science, Somerville College, Oxford, UK
October 2013 – October 2014.
Visiting Student in Prof. Frank Wood's group.

Siberian Federal University, Krasnoyarsk, Russia
2010–2014.
Bachelor's degree in Mathematics (Bachelor of Science in Mathematics[8]) with honours *(the degree requires 4 years of full-time study)* from the Institute of Mathematics and Computer Science. GPA 5.0/5.0. Thesis "Generative Probabilistic Programming" (in Russian).

Massachusetts Institute of Technology, Cambridge, MA, USA
January 2012 – August 2012 (remotely), September 2012 – August 2013 (in person).
Computer Science and Artificial Intelligence Laboratory (EECS/BCS).
Visiting student in the Computational Cognitive Science Group (Prof. Tenenbaum) and the Probabilistic Computing Group (Dr Mansinghka).

Yandex School of Data Analysis, Moscow, Russia
Autumn Term, 2011.
Computer Science Department, 3 Master's-level courses (remotely). GPA 5.0/5.0.

Siberian Federal University, Krasnoyarsk, Russia
2008–2010 (2 years of Bachelor's degree studies).
Economics / Management. Institute of Economics, Management and Environmental Studies. GPA 5.0/5.0.

Gymnasium #3, Krasnoyarsk, Russia
Graduated in 2008.
Final GPA 5.0/5.0.

Languages

English, Russian.

Skills

- **AI, ML, Data Science:** Bayesian and Causal Modelling and Inference, Monte Carlo methods (especially Markov Chain MC and Sequential MC) and other inference methods, Probabilistic Programming, Optimisation, applications of Computer Vision and Natural Language Processing. Experience with other major areas of Machine Learning (including Neural Networks), LLMs.
- **Languages and technologies:** Python (including matplotlib, scikit-learn, numpy, scipy), C++, Clojure, TensorFlow, Git, Google Cloud, AWS, Azure, Scheme, PHP, MATLAB, SQL/MySQL, ActionScript (Adobe Flash), HTML, JavaScript, Visual Basic, VBA, Church, Venture, Anglican, ZeroMQ. Docker, CI/CD, Maple.

Academic Experience

Southampton University, Southampton, UK
Probabilistic Programming Workshop **22nd of March, 2016**

- Co-organised a workshop on probabilistic programming (using Anglican and Invrea's Scenarios Excel Plugin).

Oxford University, Oxford, UK
Master's by Research student, and previously Visiting Student **October 2013 – May 2016**

- Research on probabilistic programming (generative modelling, Bayesian inference, MCMC and SMC), neural networks (especially their applications for better probabilistic inference), and automatic program synthesis.

[8] As in the certified translation of the degree from Russian to English.

- Contributed to probabilistic programming language and system "Anglican". `https://probprog.github.io/anglican/`. The system is written in Clojure.
- Led with Prof. Frank Wood the Probabilistic Programming Reading Group 2013–2014 @ Oxford.
- Co-organised Bayesian Nonparametrics Lunches 2013–2014 and Machine Learning Lunches 2014–2015 (informal seminars) @ Oxford (with Dr François Caron, Prof. Frank Wood, Prof. Yee Whye Teh; Pengyu Wang, Dr Radu Grigore, Prof Hongseok Yang joined as co-organisers in 2014).
- Organised two Brainstorming Strong Artificial Intelligence Forum sessions @ Oxford (in 2015) and a Brainstorming strong AI Hackathon @ Oxford (in 2016).
- Teaching assistant at the Machine Learning Summer School 2014 (Reykjavik, Iceland) for the course "Probabilistic Programming and Bayesian Nonparametrics" by Prof. Frank Wood.
- Teaching assistance for an Information Engineering Systems class (for a part of it).

Massachusetts Institute of Technology, Cambridge, MA USA
Research, Visiting Student **January 2012 – August 2012 (remotely), September 2012 – August 2013 (visiting student)**

- Research in probabilistic programming. Visiting student in the Computational Cognitive Science Group (Prof. Tenenbaum) and the Probabilistic Computing Group (Dr Mansinghka).
- Implemented a prototype Clojure-based MCMC engine for a variant of probabilistic programming language Church, and added a multithreaded approximate MCMC scheme that runs multiple inference steps at the same time.
- Worked as the first lead developer for the Venture project, co-designed its first inference engine prototype, and contributed to the design of the VentureScript language and the overall system architecture. The prototype of Venture was written in C++ and Python.
- Implemented and debugged several Venture programs for machine learning and statistics, including variants of topic modeling, nonparametric clustering, and regression. Also applied topic models to real-world datasets.
- Contributed to research on generative probabilistic graphics programs for breaking simple CAPTCHAs and inferring 3D road scenes. Results were published in our paper "Approximate Bayesian Image Interpretation using Generative Probabilistic Graphics Programs", which was accepted for an oral presentation at NIPS 2013 (oral acceptance rate: 20 papers out of 1420 submissions).
- Contributed to an application of Venture to geophysics, as part of a project with Shell, and visited Shell Research in Houston, TX, to support a presentation of preliminary results.
- The visit and research was supported by Russian President's Fellowship and Google "Rethinking AI" Grant.

École Polytechnique Fédérale de Lausanne, Switzerland
Summer Intern **June 2012 – August 2012**

- Research in machine learning, AI and robotics. Project "Locomotion of Modular Robots: Optimizing Modular Robots Locomotion in Simulation and Applying Results to Real-World Robot". School of Engineering, Biorobotics Laboratory. Supervised by Rico Möckel, Massimo Vespignani, Soha Pouya, Stéphane Bonardi, Prof. Auke Jan Ijspeert. Used C++.

Siberian Federal University, Krasnoyarsk, Russia
Undergraduate Research **May 2011 – June 2012**

- Undergraduate research in optimisation, genetic algorithms, supervised by Semenkin Evgeniy Stanislavovich[9].

[9] Professor at Siberian Federal University.

Krasnoyarsk State Pedagogical University, Krasnoyarsk, Russia
Undergraduate Research **2010–2011**

- Co-developed interactive handbook (self-tutor) "Programming" for undergraduate students". The PI of the project: Laletin Nicolay Victorovich[10]. The project was ranked the second in the competition organised by Krasnoyarsk State Pedagogical University.

Extra Assistantship, Teaching Support and Tutoring

- Indian-Russian Intense Autumn School for Schoolchildren and Students in Computer Science, Pune, India, September 2013. School co-organisation and coordination (educational component). Tutoring of schoolchildren and college/university students in Computer Science: programming languages and artificial intelligence section of the school.
- Spring term, 2010–2011 academic year, Siberian Federal University, Faculty of Mathematics, supporting some parts of courses "Number theory" and "Theoretical mechanics" (as a student of the class, nominated by lecturers).
- Youth Computer Science Project Schools (like Summer Schools) for Schoolchildren, 2008–2010. Took part as a tutor, teacher and co-organiser.
- A presentation with a short intro to Machine Learning / AI for schoolchildren (in Russian, remote). July 2019.

Other Start-up / Industry / Related Experience

Invrea (start-up), Oxford, UK
Co-founder, Executive Officer **January – September 2016**
Bringing the state-of-the-art generative modelling machine learning methods (probabilistic programming, sequential / Markov chain Monte Carlo and variational inference) into Microsoft Excel. Leading a team of three. Doing software engineering. Delivered Invrea's product together.

Project and company "Proverim.com"
Co-founder / CTO **Autumn of 2007 – 2012**
"Proverim.com" was the system of electronic mark-book and SMS/web notification for schools (more than 30 schools were connected to the service system in 2010/2011, and more than 50 schools in 2011/2012). It was run in many cities in Russia and franchised to Kazakhstan and Mongolia. I was mostly active with the project (including as CTO) until 2010. I was a co-founder, author of the innovative technology and software, leader of the IT-department (2 subordinates), software engineer, applied machine learning system developer. I combined the work with studies. The technical and machine learning components of the project had been conceived and implemented by me, then advanced by our great team. Used C++, Visual Basic, HTML, and JavaScript.

Developer of AIMS web-site
Web-developer **2014**
Developed and trained how to maintain a web-site for the EPSRC Centre for Doctoral Training in Autonomous Intelligent Machines and Systems @ Oxford University.

Freelancer (web-sites and software developer), Russia
Product and project manager, software engineer **2006–2014**
Including the development and support of web-sites.

Online pageant and literary contests, Krasnoyarsk, Russia
Co-founder, leader, software engineer **2007–2008**
Organised city internet-contests "Miss" and "Mister" (online beauty contests, separately for women and men), as well as "Literary City Contest" (online city contests for writers; 5 literary contests were organised).

[10] Professor at Krasnoyarsk State Pedagogical University.

Educational computer games development, Krasnoyarsk, Russia
Product / project manager, software engineer **2007–2008**
The collection of six computer games for children "Educational games", leading a team of 5+ people working part-time.

Lyceum No. 1310, Moscow
Multiple roles **Spring of 2007**
One-month training (as a visiting school pupil) at Lyceum No. 1310 (Moscow); technical personal assistant to the director of the lyceum (organising IT-support of All-Russian contest "the Big Game"); software engineer for the project "Publicator" of the Schoolchildren Newspapers Portal (portal.lgo.ru). This project was developed by me and enabled schoolchildren to create online internet newspapers during "the Big Game" event.

"IT-company": the group of young freelancers, Krasnoyarskiy region, Russia
Various roles, including being Lead/Chief of the company In/around **2006–2008**
Around 10 part-time subordinates.

Project "Electronic Kiosk-Seller", Krasnoyarsk, Russia
Software engineer, project lead **2005–2007**
Development, tuning and introduction (application) of the project "Electronic Kiosk-Seller" (instant payment terminals).

"YarSoft" LLC, Krasnoyarsk, Russia
Software engineer, system administrator **2005–2008**
Part-time combined with studies. The company specialisation was in software development and software distribution, as well as advertisement.

Project "Computer Agent for IRC-system" (aka chatbot), Krasnoyarsk, Russia
Idea author, software engineer **2004–2005**
The chatbot system analysed messages from users in an instant chat (IRC) and acted on users' instructions. Simple basic statistics was applied to facilitate the chatbot.

Reviewing

- NeurIPS Conferences
- International Conference on Probabilistic Programming (PROBPROG)
- Natural Sciences and Engineering Research Council of Canada

Awards, Grants, Spotlights, and Activities

- The/a topic driver of the "AI for MSK medicine" topic group (October 2020 to March 2023), a part of the ITU/WHO focus group "AI for Health". Initially, I was the only topic driver, and then one of the topic group's topic drivers.
- A NeurIPS [Conference] 2021 Outstanding Reviewer Award ("given to the top 8% of reviewers who were judged to be instrumental to the review process based on Area Chair and author feedback").
- One of the panellists of the 'Build' session on building models for AI healthcare products at the AI in Healthcare masterclass organised by the Digital Health Section of the Royal Society of Medicine (17th of February 2021).
- Presented a talk "Multiverse: Causal Reasoning Using Importance Sampling in Probabilistic Programming" and participated at the second International Conference on Probabilistic Programming 2020 (PROBPROG).
- A member of the Topic Group "Symptom Assessment" (a part of the ITU/WHO focus group "AI for Health"). July 2019 to March 2020: Co-leading the work on design and implementation of an international benchmark prototype for AI symptom assessment apps; Representing Babylon Health at the Topic Group and Focus Group; Co-presenting the Topic Group achievements at the Focus Group's regular meeting in Delhi (November 2019). After March 2020: as an independent

member; then, as a member representing EQL; and then as an independent member (until April 2023).

- Lead organiser, as Head of AI & Data Science of EQL, of the preparatory meetings for the "AI for MSK medicine" topic group (to be a part of the ITU/WHO focus group "AI for Health"). The preparatory meetings were proposed and organised by EQL. Online, September 2020.
- Participated at the NeurIPS Conference/Workshops 2020 (online, 2020).
- One of the top 10% of high-scoring reviewers (based on average area chair ratings) of the NeurIPS 2020 conference.
- Attended NeurIPS Conference and Workshops 2019 (Canada, 2019), representing Babylon Health AI.
- UK Exceptional Talent visa (endorsement via UK Tech Nation), October 2019.
- Participating in a meeting of the "Symptom assessment" topic group, representing Babylon Health, Berlin (Germany), October 2019.
- Participating in a meeting of the "Symptom assessment" topic group, representing Babylon Health, London (UK), July 2019.
- Attended NIPS Workshops in 2016 (Barcelona) and NIPS Conference and Workshops in 2017 (California), representing Babylon Health AI.
- Heidelberg Laureate Forum (August 2015), a young researcher.
- Admission to Stanford Computer Science PhD program with full financial support (tuition fees plus living costs, 2014 and deferred to 2015). Had to courteously decline.
- The Oxford Clarendon Fund Scholarship, the Cambridge International Scholarship and Ecole Polytechnique Fédérale de Lausanne PhD fellowship (2014). Courteously declined.
- National fellowship of the Government of the Russian Federation, October 2013. For outstanding studying and research activities.
- All-Russian Fellowship "Lift to the Future"[11], August 2013. Organised by the Russian company "Sistema".
- Conference "Neural Information Processing Systems Conference" 2012. Workshop "Probabilistic Programming: Foundations and Applications", Lake Tahoe, Nevada, USA. Presenting the work "Efficient, Envelope-based Multicore Markov Chain Inference for Church", which was accepted for a poster spotlight (short talk) and poster presentation.
  Venture demo (by Vikash Mansinghka and Yura Perov).
- Switzerland, École Polytechnique Fédérale de Lausanne, the poster session of the EPFL Summer Research Program, August 2012. Best Student Poster Award (1st place) for the project "Locomotion of Modular Robots: Optimizing Modular Robots Locomotion in Simulation and Applying Results to Real-World Robot".
- Russian President's Fellowship Award for outstanding students, which was given to conduct research at MIT for one academic year. Approx. $30k fellowship incl. university fees and expenses.
- Switzerland, École Polytechnique Fédérale de Lausanne, School of engineering, Biorobotics Laboratory, Prof. Ijspeert, June–August 2012. Summer Research School in Technology and Life Sciences (competitive: the applicants/participants ratio is higher than 27 with the applications from all over the world). Supervised by Rico Möckel, Massimo Vespignani, Soha Pouya, Stéphane Bonardi, Prof. Auke Jan Ijspeert. Approx. $4k scholarship incl. expenses covered.
- "StartUp Access" program, Cambridge (Massachusetts, USA), one week with business mentors and introduction to Boston/MIT's entrepreneurial ecosystem and its players, 6–10 February 2012. Representing the business project "ProverimCom", its achievements and prospects.

[11] I was selected by the panel for this All-Russian student fellowship in a contest but actually never received the scholarship money because after the selection I was asked to sign a contract to reassign academic intellectual property.

- Award “Best student of Siberian Federal University” (for outstanding achievements in studies, 2nd place), December 2011. Award “Best student” is given only to 3 students in each nomination each year.
- RuSSIR/EDBT 2011 Summer School in Information Retrieval & Database Technology, St. Petersburg, 2011. Presented results of the project “System of Electronic Mark-book for Schools Proverim.com” (poster session). Organisers: Saint Petersburg State University, ROMIP, EDBT Association.
  Practical task in Machine Learning organised by Vladimir Gorovoy (Yandex) and Yana Volkovich (Barcelona Media) using Yandex.Market data as part of “an Introduction to Social Mining” course at RuSSIR/EDBT Summer School. Award, 1st place (First Prize).
- Microsoft Computer Vision School, Moscow, 2011. Diploma for successfully completing the school. Organisers: Microsoft Research, Lomonosov Moscow State University.
  4th result (shared 5–7th place) in a practical task (tuning an image classifier).
- Summer School in Software Engineering and Verification, Moscow, 2011. Certificate for successfully completing the school. Organisers: Microsoft Research, Higher School of Economics.
- Yandex Summer School in Distributed Computing, Moscow (Dolgoprudny), 2011. Organisers: Yandex, Moscow Institute for Physics and Technology. Participated in/audited the school.
- International Summer School-Conference in Artificial Intelligence for students and young researches “Intelligent systems and technologies: state-of-the-art and outlook” ISyT’2011, Tver (city), 2011. Award for the best student report; also a certificate for participating. Organisers: the Russian Association for Artificial Intelligence, Tver State Technical University.
- X International FAMET’2011 Conference, Krasnoyarsk (section “Computer Science”). Paper “Planning the operation of web server processes”, presentation.
- Regional computer software contest “Soft-Parade 2011”. Award “Ultimate Champion” (Grand Prize). `http://www.soft-parade.ru/`.
- Regional software engineering challenge at “Soft-Parade 2011”. Award, 1st place.
- VII All-Russian Scientific and Practical Conference of Students and Young Scientists “Youth and Science”, the section “Modern Problems of Mathematics and Computer Science”, 2011. Paper “Practical implementation of an elementary recognition method for processing paper forms”, 2nd place.
- “National (All-Russian) Conference on Artificial Intelligence” (KII-2010), Tver (city), 2010. Participant-student.
- XVI Inter-regional Scientific and Practical Conference of Economics Students [including doctoral students] “Problems of the Modern Economics” (Siberian Federal University), 2010. Paper “Use of hi-tech service methods for improving students’ time use efficiency” aka “New smart services for our university”, award, 3rd place in the section “Theory and practice of modern management: tools, innovations and development trends”.
- Fellowship from the bank MDM Bank for talent students. Prize-winner.
- Rating at Siberian Federal University, a semester in the 2009–2010 academic year. Absolutely first (by average points) among approx. 8000 1st- and 2nd-year students according to the official university rating of freshmen and sophomore classes.
- All-Russian Contest “Business in Innovative Technologies” (“BIT”), regional stage, Tomsk (city), 2009. Co-winner (project “System of Electronic Mark-book for Schools”), award, 1st place (“BIT” is a Russian analog for “MIT Entrepreneurship Competition”).
- All-Russian Summer School “Seliger 2009” for Youth Innovators, section for young researches, Tver (city). A certificate of the “Open Innovation University”.
- Exhibition “Scientific and Technical Youth Creativity”, Moscow, 2009. Delegated from the university, certificate “Innovative products”.

- XV Inter-regional Scientific and Practical Conference of Economics Students [including doctoral students] "Problems of the Modern Economics" (Siberian Federal University), 2009. Paper "Innovative Economic Growth in Russia: problems and perspectives", 1st place within the section "Economic growth in Russia in the context of instability of the global economy" and within the whole conference (shared).
- Youth Computer Science / Business Project Schools (like Summer Schools) for Schoolchildren, no later than 2006–2008. Took part many times (min. 9 sessions), as programmer and then (also) as team leader. Took the 1st places (with awards) in contests (individual and team championships) several times.
- A software registration ("patent") (Russia) for the software product "System of Electronic Mark-book for Schools Proverim.com", 2008. Registration certificate.
- Grant from Krasnoyarsk company "Iskra" (specialises in information technologies), 2008. Prize-winner.
- Summer school "Innovative enterprise" on "TIM Birusa 2008". Certificate.
- Regional activity for initiative young people "TIM Birusa 2008". Krasnoyarsk youth economic forum. Co-presenting the project "System of Electronic Mark-book for Schools" — one of the top projects; one of the top performers (a "top-member") among students; and a participant of "bonus days".
- Regional software engineering challenge "Soft-Parade 2008". Winner, award, 1st place.
- Regional computer software contest "Soft-Parade 2008". Co-author, co-leader, software engineer of the project "City Internet Beauty Contest and City Literary Contest", award, 4th place in section "Debut".
- Regional computer software contest "Soft-Parade 2008". Co-author, co-leader, programmer of the project "System of Electronic Mark-book for Schools", award, 4th place in section "Informational Services".
- Regional Youth Scientific Challenge "Youth and Science", 2008. Winner, award "Ultimate Leadership" in the nomination "New technologies of the 21st century".
- Prize (award) of the Krasnoyarsk mayor for young gifted persons, 2008. Prize-winner.
- 5th Krasnoyarsk Economic Forum, 2008. Participant (fee-free pass from the Government of Krasnoyarskij krai region).
- Regional IT-championship, First Siberian IT-festival, Krasnoyarsk, 2007. Award "Internet technologies", 3rd place among students and young professionals.
- Regional computer software contest "Soft-Parade 2007". Lead and software engineer of the project "Internet Publishing Manager (site)", award, 3rd place in section "Informational Services".
- All-Russian Contest of School Newspapers and Magazines, 2007. Diploma in the nomination "Special Prize" (for my personal activity / as a board member of our gymnasium newspaper).
- Practical training "Internet Journalism" in the journal "Education in Lyceums and Gymnasiums", Moscow, 2007. Information technologies in journalism. Certificate.
- Regional computer software contest "Soft-Parade 2006". The project "Electronic Kiosk-Seller", winner, award, 2nd place in section "Informational Services".
- Krasnoyarsk City's Oktiabriskiy District's Scientific and Practical Conference for schoolchildren, 2005–2006 school year, the section of Mathematics. 3rd place.
- Regional computer software contest "Soft-Parade 2005". Author and programmer of the project "Computer Agent for IRC-system", award, 3rd place in section "Debut".

Papers (and akin), Posters, and Reports

- Deliverable "FG-AI4H Topic Description Document for the Topic group on Symptom assessment (TG-Symptom)"; the editors are Henry Hoffmann and Martin Cansdale; I am one of the contributors; the International Telecommunication Union / World Health Organization Focus Group on AI for Health; the International Telecommunication Union Telecommunication Standardization Sector (ITU-T); 2023; pre-published version.
- Deliverable "FG-AI4H Topic Description Document for the Topic group on AI for musculoskeletal medicine (TG-MSK)"; the editors are Peter Grinbergs and Mark Elliott; I am one of the contributors; the International Telecommunication Union / World Health Organization Focus Group on AI for Health; the International Telecommunication Union Telecommunication Standardization Sector (ITU-T); 2023; pre-published version.
- Paper "Applying Artificial Intelligence Methods for the Estimation of Disease Incidence: The Utility of Language Models" by Yuanzhao Zhang, Robert Walecki, Joanne R. Winter, Felix J. S. Bragman, Sara Lourenco, Christopher Hart, Adam Baker, Yura Perov and Saurabh Johri. Frontiers in Digital Health, December 2020, `https://doi.org/10.3389/fdgth.2020.569261`.
- Paper "Learning medical triage from clinicians using Deep Q-Learning", Albert Buchard, Baptiste Bouvier, Giulia Prando, Rory Beard, Michail Livieratos, Dan Busbridge, Daniel Thompson, Jonathan Richens, Yuanzhao Zhang, Adam Baker, Yura Perov, Kostis Gourgoulias, Saurabh Johri, arXiv, `https://arxiv.org/abs/2003.12828`. 2020.
- Paper "Copy, paste, infer: a robust analysis of twin networks for counterfactual inference", Logan Graham, Ciarán M. Lee, Yura Perov. Accepted to and presented at the "Causal ML" workshop (workshop full name is " 'Do the right thing': machine learning and causal inference for improved decision making") at the NeurIPS 2019 (Vancouver, Canada).
- Paper "MultiVerse: Causal Reasoning using Importance Sampling in Probabilistic Programming", Yura Perov[12], Logan Graham[12], Kostis Gourgoulias, Jonathan G. Richens, Ciarán M. Lee, Adam Baker, Saurabh Johri, arXiv, `https://arxiv.org/abs/1910.08091`. Accepted to and presented with a poster at the Second Approximate Inference Symposium (Vancouver, Canada, 2019). Also, the second International Conference on Probabilistic Programming 2020 (PROBPROG).
- Paper "Universal Marginaliser for Deep Amortised Inference for Probabilistic Programs", Robert Walecki, Kostis Gourgoulias, Adam Baker, Chris Hart, Chris Lucas, Max Zwiessele, Albert Buchard, Maria Lomeli, Yura Perov, Saurabh Johri, arXiv, `https://arxiv.org/abs/1910.07474`.
- Paper "Tuning semantic consistency of active medical diagnosis: a walk on the semantic simplex", Albert Buchard, Adam Baker, Konstantinos Gourgoulias, Alexandre Navarro, Yura Perov, Max Zwiessele, and Saurabh Johri. An abstract accepted (and presented by Albert) at the Frontier of AI-Assisted Care (FAC) Scientific Symposium at Stanford (CA, USA), September 2019.
- Paper "A comparative study of artificial intelligence and human doctors for the purpose of triage and diagnosis", Salman Razzaki, Adam Baker, Yura Perov, Katherine Middleton, Janie Baxter, Daniel Mullarkey, Davinder Sangar, Michael Taliercio, Mobasher Butt, Azeem Majeed, Arnold DoRosario, Megan Mahoney, Saurabh Johri. arXiv, `https://arxiv.org/abs/1806.10698`, June 2018. An abstract accepted and co-presented (as a robot via telepresence) with a poster at the Frontier of AI-Assisted Care (FAC) Scientific Symposium at Stanford (CA, USA), September 2019. A version of this paper is also published in Frontiers in Artificial Intelligence, November 2020, `https://doi.org/10.3389/frai.2020.543405`: "A Comparison of Artificial Intelligence and Human Doctors for the Purpose of Triage and Diagnosis", Adam Baker[13], Yura Perov[13], Katherine Middleton, Janie Baxter, Daniel Mullarkey, Davinder Sangar, Mobasher Butt, Arnold DoRosario, Saurabh Johri.
- Paper "Universal Marginalizer for Amortised Inference and Embedding of Generative Models", Robert Walecki, Albert Buchard, Kostis Gourgoulias, Chris Hart, Maria Lomeli, A. K. W. Navarro, Max Zwiessele, Yura Perov, Saurabh Johri, 2018, arXiv, `https://arxiv.org/abs/1811.04727`.

[12] Logan and Yura have made equal contributions to the paper.
[13] Adam and Yura have contributed equally to this work.

- Paper "Inference Over Programs That Make Predictions", Yura Perov. The International Conference on Probabilistic Programming, 2018. Presented with a poster.
- Paper "A Universal Marginalizer for Amortized Inference in Generative Models", Laura Douglas, Iliyan Zarov, Konstantinos Gourgoulias, Chris Lucas, Chris Hart, Adam Baker, Maneesh Sahani, Yura Perov, Saurabh Johri. NIPS 2017 Workshop on Advances in Approximate Bayesian Inference.
- Paper "Spreadsheet Probabilistic Programming", Mike Wu, Yura Perov, Frank Wood, Hongseok Yang, William Smith, 2016, arXiv, `http://arxiv.org/abs/1606.04216`. Also was accepted to the International Conference on Probabilistic Programming 2018, for a poster presentation (the poster presentation itself could not take place due to finance).
- Master's Thesis "Applications of Probabilistic Programming", Oxford, 2016. `http://arxiv.org/abs/1606.00075`
- Paper "Nonparametric Bayesian Models for Unsupervised Activity Recognition and Tracking", Neil Dhir, Yura Perov and Frank Wood, International Conference on Intelligent Robots and Systems (IROS 2016, **acceptance rate:** $830/1719 = 48\%$).
- Paper "Automatic Sampler Discovery via Probabilistic Programming and Approximate Bayesian Computation", Yura Perov and Frank Wood, the International Conference on Artificial General Intelligence 2016 (Springer).
- Abstract and poster "Data-driven Sequential Monte Carlo in Probabilistic Programming", Yura Perov, Tuan Anh Le and Frank Wood, NIPS Workshop on Black Box Learning and Inference (2015). (The work presented by Tuan Anh.)
- Bachelor's Thesis on Generative Probabilistic Programming (in Russian language), Krasnoyarsk, Cambridge (US), Oxford, 2014. `http://arxiv.org/abs/1601.07224`
- Abstract and poster "Learning probabilistic programs", Yura Perov and Frank Wood, NIPS Probabilistic Programming Workshop (2014). Was accepted for a poster presentation with a spotlight.
- Talk abstract "Probabilistic programming and automatic programming" in "Approaches and Applications of Inductive Programming" (Dagstuhl Seminar 13502). Dagstuhl Reports. ISSN 2192-5283. Edited by Sumit Gulwani, Emanuel Kitzelmann, and Ute Schmid. URL `http://drops.dagstuhl.de/opus/volltexte/2014/4507`.
- Paper "Venture: a higher-order probabilistic programming platform with programmable inference", Vikash Mansinghka, Daniel Selsam, Yura Perov. `http://arxiv.org/abs/1404.0099`
- Paper "Approximate Bayesian Image Interpretation using Generative Probabilistic Graphics Programs", Vikash K. Mansinghka, Tejas D. Kulkarni, Yura N. Perov, Joshua B. Tenenbaum. NIPS 2013. **Accepted for full oral presentation (oral acceptance rate:** $20/1420$ **total submissions** $= 1.4\%$**); paper acceptance rate:** $360/1420 = 25\%$. (Also arXiv:1307.0060)
- Paper "Gait optimization for Roombots modular robots – Matching simulation and reality", Rico Möckel, Yura Perov, Anh The Nguyen, Massimo Vespignani, Stéphane Bonardi, Soha Pouya, Alexander Spröwitz, Jesse van den Kieboom, Frédéric Wilhelm, Auke Jan Ijspeert. IROS 2013. **(acceptance rate:** $903/2089 = 43\%$**)**.
- Abstract/Poster "Efficient, Envelope-based Multicore Markov Chain Inference for Church", Yura Perov and Vikash Mansinghka. NIPS 2012 "Probabilistic Programming: Foundations and Applications" Workshop.
- Poster "Locomotion of Modular Robots: Optimizing Modular Robots Locomotion in Simulation and Applying Results to Real-World Robot", Yura Perov, Rico Möckel, Massimo Vespignani, Soha Pouya, Stéphane Bonardi, Auke Jan Ijspeert. Switzerland, EPFL, Summer research program symposium. **Best poster award.**

- Paper 'System description manual of the project "System of Electronic Mark-book for Schools Proverim.com"' (in Russian), Yura Perov. Intelligent Systems and Technologies: State-of-the-art and Outlook. Proceedings of International Summer School-Conference in Artificial Intelligence for students and young researches. Tver, 2011. **Best student report award.**
- Paper "Planning the operation of web server processes" (in Russian), Yura Perov. Collected articles of X International FAMET'2011 Conference. Krasnoyarsk, 2011.
- Paper "Use of hi-tech service methods for improving students' time use efficiency" aka "New smart services for our university" (in Russian), Yura Perov and Natalia G. Makuha. Problems of the Modern Economics. Collected articles of the XVI Inter-regional Scientific and Practical Conference of Economics Students [including doctoral students], Siberian Federal University, Krasnoyarsk, 2010.
- Review paper "Innovative Economic Growth in Russia: problems and perspectives" (in Russian), Yura Perov and Tatiana V. Kovaleva. Problems of the Modern Economics. Collected articles of the XV Inter-regional Scientific and Practical Conference of Economics Students [including doctoral students], Siberian Federal University, Krasnoyarsk, 2009. **Best student report award (1st place).**
- "Introduction to Publicator" (a manual for the internet service) (in Russian), a part of a special appendix for the journal "Education in Lyceums and Gymnasiums", a series of brochures "Master class. Open lesson", #7, 2007, Tatiana Michailova, Vladimir Golovner, Yura Perov, et al.

Patent Applications

- "Computer implemented determination method and system". Filed by Babylon Health. Application **granted**: US11328215B2, US11348022B2. US20190251461A1 ('Abandoned').
- "Causal Reasoning and Counterfactual Probabilistic Programming Framework Using Approximate Inference". GB2589828A (withdrawn), US20210110287A1 ('Abandoned').
- "Context Aware Machine Learning Models for Prediction". US20220076828A1. 'Abandoned'.
- "Computer implemented method and system for running inference queries with a generative model". US20210103807A1. Abandoned.
- "A computer implemented determination method and system" / "Computer-implemented method and system for determining". Filed by Babylon Health. US20210358624A1 ('Abandoned'), EP3704639A1 ('Withdrawn'), CN111602150A (it seems, probably, withdrawn or similar).
- Patent application "Computing engine, software, system and method". US20170269561A1. Filed by Invrea. The application was submitted. The application was abandoned and the company was dissolved.
- Patent application "Methods and devices for executing program code of a probabilistic programming language". WO2015140550A1, US20170090881A1. Filed by Oxford University Innovation, then the project was archived due to the lack of financial support and the application was stopped.

Talks & Presentations

Co-presenting updates for the Topic Group "Musculoskeletal medicine", a part of International Telecommunication Union / World Health Organisation's Focus Group "Artificial Intelligence for Health" at the 12th, 13th, 14th, 15th and 16th Focus Group meetings (May 2021; September 2021; February 2022; June 2022; September 2022; all presented online).

Presenting an update for the Topic Group "AI for MSK medicine", a part of International Telecommunication Union / World Health Organisation's Focus Group "Artificial Intelligence for Health" at the 11th Focus Group meeting (online, January 2021).

Co-Presenting a Proposal for the new suggested Topic Group "AI for MSK medicine" to become a part of International Telecommunication Union / World Health Organisation's Focus Group "Artificial Intelligence for Health" at the 10th Focus Group meeting (online, September-October 2020). The topic group was approved and created.

Talk "MultiVerse: Causal Reasoning using Importance Sampling in Probabilistic Programming" as part of the Data-Centric Engineering Reading Group at the Alan Turing Institute (19th of February 2020).

Co-Presenting an Update for the Topic Group "Symptom Assessment" that is part of International Telecommunication Union / World Health Organisation's Focus Group "Artificial Intelligence for Health" in Delhi, India, at the 7th Focus Group meeting (November 2019).

Talk "Bringing Probabilistic Programming to the People" at Alan Turing Institute's Probabilistic Programming Workshop (C72) at the British Library (4th and 5th of February 2016).

Talk "Automatic Programming and Probabilistic Programming". Dagstuhl Seminar, "Approaches and Applications of Inductive Programming", the 8–11th of December, 2013.

"Generative probabilistic programming: applications and new ideas" (2014).

The talk was given at

- Microsoft Research (Cambridge, UK, hosted by Dr John Winn).
- Cambridge University, within the series of Machine Learning seminars at the Cambridge University Engineering Department (hosted by Prof. Zoubin Ghahramani).

"Explorations in probabilistic programming: generative probabilistic graphics programming and new research directions", 2013.

The talk was given at

- a Prof. Ryan Adams' group's meeting (Harvard),
- a Prof. Rastislav Bodík's group's meeting (University of California, Berkeley),
- the talk's research presented to and discussed with some of Prof. Stuart Russell's group's members (University of California, Berkeley),
- the talk given at a Prof. Tom Griffiths' group's meeting (University of California, Berkeley),
- a Prof. Percy Liang's group's meeting (Stanford),
- Microsoft Research (Bangalore, India, hosted by Dr Aditya Nori),
- and Oxford University's Robotics seminar.

These many talks/meetings (in 2013) and especially following discussions allowed me to gather great feedback on my commenced research direction in program synthesis with probabilistic programming.

NOTES

(‡ — on the 18th of August 2024.) All information has been provided to the best of my memory and understanding. More information can be provided.