Alexander V. Belikov
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Paris, France

AI Research Leader with 10+ years of experience in ML and AI-driven decision systems. Proven track record in managing research teams, developing large-scale AI models, and translating research into business impact.

EDUCATION

Ph.D. in Physics, University of Chicago, IL, 2011
M.S. in Applied Mathematics and Physics (summa cum laude), Moscow Institute of Physics and Technology, Russia, 2005
B.S. in Applied Mathematics and Physics (summa cum laude), Moscow Institute of Physics and Technology, Russia, 2003

EXPERIENCE

Founder Sept. 2024 - present
Growgraph, Paris, France

- Founded a SaaS startup to optimize resource allocation from (un)structured data, building on prior research in AI-driven decision-making.
- Developed XSI: Semantic Impact Evaluation Tool, a platform for assessing biomedical research preprints (demo, arXiv:2502.13912).
- Applied knowledge graph techniques to legal data, constructing a criminal legal ontology and analyzing the decisions of the French Cassation Court, see arXiv:2501.14579.

Head of R&D Sept. 2023 - Feb. 2024
Qantev, Paris, France

- Led and mentored a team of 4 data scientists, driving AI research and deployment in medical insurance domain.
- Defined a research roadmap, aligning AI development with business objectives, fraud detection efficiency, and claims automation.
- Designed an original mixed-curvature embedding model for medical codes, reducing false positives in anomaly detection across millions of claims for a leading insurance provider.
- Supervised multiple Master's theses on neural networks for anomaly detection, developing talent pipelines for AI research.

Lead Data Scientist Apr. 2023 - Sept. 2023
Qantev, Paris, France

- Optimized document processing workflows by fine-tuning an OCR model for Spanish handwriting, reducing character error rate from 55% to 6%, enabling accurate digitization of medical records.
- Developed and standardized a base data schema, allowing for scalable multi-client data integration, reducing onboarding time for new insurers.

Head of Data Science Nov. 2019 - Apr. 2023
Hello Watt, Paris, France

- Managed a team of 2 to 5 data scientists, setting research priorities and strategy to align AI development with business goals.
- Defined research roadmap, aligning AI development with business objectives to improve business development and brand recognition.
- Led the development of original and scalable AI models for energy consumption analysis, improving signal disaggregation and anomaly detection.
- Published research in peer-reviewed journals and company blog, boosting company brand recognition in AI-driven energy solutions.
- Led integration of AI models into operational workflows, enabling real-time anomaly detection for energy efficiency solutions.
- Supervised multiple Master's theses in energy AI and SEO optimization, strengthening company expertise in AI-powered data solutions.

Postdoctoral fellow Jan. 2016 - Oct. 2019
University of Chicago, Knowledge Lab

- Prototyped a novel model of agent evolution on a graph using Seq2Seq methods used to predict the state of the graph, the evolution of individual agents and to identify clusters of agents and events.
- Developed a model of validity of scientific claims in biological literature (with AUC reaching 0.8), and subsequently a model for prediction of the gene-gene interaction with AUC reaching 0.76 based on original network features.

Quantitative researcher Aug. 2015 - Jan. 2016
Barclays Capital, Equity Derivatives Group, New York

- Introduced an effective method for estimating portfolio sensitivities between trading days that accounts for the change of the volatility surface (C++, deployed in production).
- Implemented new types of contracts: options on volatility control indexes.

Quantitative researcher Jun. 2014 - Aug. 2015
JP Morgan Chase, Model Review and Development, New York

- Developed a machine learning model for mortgage default prediction, improving risk and loss assessment and contributing to regulatory compliance in financial stress testing.
- Implemented the model of rating migration (loan default estimation) used for the Comprehensive Capital Analysis and Review (CCAR) of the wholesale portfolio (python, deployed in production).

Postdoctoral researcher Oct. 2011 - Nov. 2013
Institut d'Astrophysique de Paris

- Predicted the cosmological annihilation signal for a contracted (due to supermassive black holes) dark matter density. Demonstrated that the spectral properties of the annihilation signal can be used to differentiate dark matter from astrophysical signals.

PhD candidate/Research Assistant Oct. 2005 - Sept. 2011
University of Chicago

- Discovered the connection between the winding angle of random curves appearing in the scaling limit of critical two-dimensional systems and the properties of local operators of conformal field theory.

- Predicted the diffuse gamma-ray background from annihilating leptohilic dark matter and estimated the impact of annihilating dark matter during the reonization epoch (developed a C++ library for estimating cosmological dark matter signals).
- Found semi-analytical solutions for a non-linear PDE in the DGP modified gravity theory.

SIDE PROJECTS

- Developed a semantic impact prediction model on academic knowledge graphs, enabling optimized portfolio selection of research publications over a three-year horizon. This framework assists funding agencies, universities, and publishers in prioritizing high-impact research.
- Designed a state-of-the-art employee churn prediction model using graph neural networks (GNNs), modeling career transitions as a structured state-space problem. Improved churn prediction accuracy and provided insights for HR decision-making and workforce planning.
- Built a large language model (LLM)-powered pipeline to extract legal knowledge graphs from court cases, enabling automated fact retrieval for court decision validation. This system enhances legal consistency checks and supports compliance and case law research.

RELEVANT SKILLS

AI & ML: LLMs, LangChain, GNN, entity linking, relation extraction, embeddings, graphical models.
Technical Leadership & Deployment: AI/ML system design, end-to-end model lifecycle management, MLOps (CI/CD for ML), scalable AI architectures, production model monitoring observability (Grafana, Prometheus), cloud deployment (Docker, Kubernetes), API design, cross-functional collaboration.
Programming and Data Tools: Python (pandas, scikit-learn, pytorch, networkx, igraph, pyro, pymc3), C++, SQL, mongoDB, ArangoDB, Fuseki, neo4j, Cypher, AQL, SPARQL, git.

PUBLIC SPEAKING

More than 30 presentations at conferences and seminars.
Organizer of journal clubs at the Institute of Astrophysics in Paris, Knowledge Lab at the University of Chicago and Hello Watt.

PROFESSIONAL INTERESTS

Hypothesis generation, relation extraction, manifold embeddings, graph neural networks, variational methods, knowledge graphs, generative methods.

LANGUAGES

English, Russian (native), French (advanced), Italian (elementary)

PUBLICATIONS

Published 20+ papers, including in Nature Machine Intelligence ("Prediction of robust scientific facts from literature"), covering AI-driven scientific discovery.