

GUSTAV ŠÍR

AI & ML Researcher

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EXPERIENCE

Assistant Professor and Researcher

Czech Technical University

📅 Sep 2013 - Present Prague , Czech Rep.

- Developing novel machine learning algorithms for relational data domains
- e.g., network security, chemistry, biology, NLP and sports analytics
- Member of the Intelligent Data Analysis research group
- Assistant professor since Dec 2022

SWE Intern

Google

📅 Jun 2017 - Oct 2017 Zürich, Switzerland

- Development of novel deep learning models for Internet shopping
- Part of a wider cooperation project between Google DeepMind and Shopping
- Technologies: TensorFlow, Python, C++, MapReduce, Go

Research Intern

IBM Research

📅 Aug 2014 - Nov 2014 Haifa/Tel-Aviv, Israel

- PoC for extending the Watson Q&A system towards non-factual questions
- "Great Minds" program in the Machine Learning Technologies laboratory
- Technologies: Java, Matlab, Python

Visiting Researcher

University of York

📅 Jun 2016 - Jul 2016 York, England

- Logic-based neural learning directed towards NLP & KBC applications

Junior Analyst and Consultant

IBM

📅 Sep 2013 - Dec 2014 Prague, Czech Rep.

- Creating prototypes of software solutions (with NLP)
- Member of the Smarter Content Analytics (iLab) group
- Technologies: Java, parts of IBM (Watson) products portfolio

MIS and Reporting analyst

Citibank Europe plc

📅 Jun 2011 - Jul 2012 Prague, Czech Rep.

- Reporting processes automation & data analysis
- For the teams of MIS/Collections (Business intelligence)
- Technologies: VBA, MSSQL, SSIS, SAP BO

Junior technical analyst

DHL IT Services

📅 Jun 2009 - Jul 2010 Prague, Czech Rep.

- Support of global processes/applications migration & virtualization
- Member of the Citrix technology and Build & Migration teams
- Technologies: .NET, VMware, Citrix

EDUCATION

Ph.D. in Artificial Intelligence

Czech Technical University

📅 2013 - 2021 Prague , Czech Rep.

- focus: Deep and Statistical Relational Machine learning from structured data.
- thesis: Deep Learning with Relational Logic Representations

M.Sc. in Artificial Intelligence

Czech Technical University

📅 2010 - 2013 Prague , Czech Rep.

- focus: Machine learning, Optimization, Data analysis, Soft computing
- thesis: Twitter's local trends spread analysis

B.Sc. in Intelligent Systems

Czech Technical University

📅 2007 - 2010 Prague , Czech Rep.

- focus: foundations of Computer science and Software engineering
- thesis: Visual design of evolutionary algorithms

ABROAD

M.Sc. Exchange Student

National Taiwanese Uni. of Science & Tech.

📅 Fall 2012 Taipei , Taiwan

- focus: Computer Science & Machine Learning

B.Sc. Exchange Student

Nanyang Technological University

📅 Fall 2010 Singapore

- focus: Adv. Algorithms & Neural networks

TRAINING

"ATHENS" programme

Telecom ParisTech

📅 Mar 2012 Paris , France

- intensive specialization exchange program
- focus: Emergence in complex systems

IBM "Smart University"

IBM CZ

📅 Jun - Aug 2010 Prague, Czech Rep.

- within IBM content analytics technologies
- focus: "Smarter content specialist" (NLP)

PROJECTS

Relational Reinforcement Learning for Science Acceleration

granted by Czech Science Foundation

Jan 2024 - Dec 2026

Czech Rep.

Researcher - Focus on reinforcement learning in scientific domains (physics&chemistry) with structured background knowledge.

End-to-end learning of optimal portfolios

granted by Czech Science Foundation

Jan 2020 - Dec 2022

Czech Rep.

Researcher - Focus on principled combining of machine learning and subsequent (portfolio) optimization problems.

Deep Relational Learning

granted by Czech Science Foundation

Jan 2017 - Dec 2020

Czech Rep.

Researcher - Developing novel algorithms for transferring neural network methods into relational learning setting.

Machine learning methods for bio-informatics

granted by Czech Technical University

Jan 2017 - Present

Prague

Coordinator (PI) - Developing various novel machine learning methods for data analysis in bio-informatics (and beyond).



Lifted Relational Neural Networks

A custom framework for deep *relational* learning, written completely from scratch. github.com/GustikS/NeuraLogic

COMMUNITY

Faculty Advisor (head)

Upsilon Pi Epsilon

Jan 2017 - Present

upe.cvut.cz

Coordinating Czech UPE Alpha Chapter activities, securing funding, etc.

Teacher (lecturer/tutor)

Czech Technical University

Jan 2013 - Present

Prague

Symbolic Machine Learning, Machine Learning and Data Analysis, Functional and Logic Programming, Database Systems, intro to NLP.

Supervisor (advisor/opponent)

Czech Technical University

Jan 2015 - present

Prague

Supervised and reviewed more than 30 bachelor and diploma theses. Supervisor of 2 PhD students. Co-supervisor of 1 defended PhD.

Reviewer (PC/EB member)

Journals and Conferences

Jan 2017 - present

International

Served as a reviewer for journals and conferences, including TNNLS, AIJ, MLJ, CI, and IJCAI, ILP, and others. Editorial board member of MLJ and NSAI. Distinguished PC member (top 3%) at IJCAI.

LANGUAGES

Czech
English
German
Chinese



TECHNICAL SKILLS

Machine Learning
Data Analysis
Algorithms
Optimization
NLP
Databases
Java
Python



AWARDS

- ★ **Best PhD thesis of 2021**
granted by the Czech Society for Cybernetics and Informatics
- ★ **Best paper @ ILP 2017**
Intl. Conf. on Inductive Logic Programming
- ★ **Best paper runner-up @ ICAPS 2024**
Intl. Conf. on Planning&Scheduling
- ★ **UPE Executive Council Award**
International Honor Society for CS endorsed by ACM & IEEE
- ★ **Graduation with honors**
summa cum laude both B.Sc. & M.Sc.

STRENGTHS

- Artificial Intelligence
- Machine Learning
- Data Mining
- Data Analysis
- Programming
- Databases
- Analytical Thinking
- Persistence
- Teaching
- Speaking
- Writing

FEATURED

- interview for magazine "Dotyk" (czech)
- interview for Open Informatics (czech)

PUBLICATIONS

Over 30+ publications with 500+ citations (h-index 13) in international journals and conferences, including a book and a US patent. Please see my [scholar profile](#)