Curriculum Vitae

Personal Data

Full Name	Petra Vidnerová, née Kudová
Born	7 May 1977 in Plzeň, Czech Republic
Citizenship	Czech Republic
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Research Interests

Machine learning, supervised learning. Deep learning.
Hyper-parameter setup, meta-learning. AutoML. Neural architecture search.
Applications of LLMs. Agent based models.

Work Experience

since 2012	**scientist**, Institute of Computer science, The Czech Academy of Sciences
	Department of Artificial Intelligence (in the past Department of Machine Learning, Department of Theoretical Computer Science).
since 11/2023	**researcher**, Faculty of Arts, Charles University
	Part-time contract on the CoRe project
2007 - 2012	**postdoc**, Institute of Computer science, The Czech Academy of Sciences
	Mainly working part time (parental leave).
2001 - 2007	**PhD student**, Institute of Computer science, The Czech Academy of Sciences
	One of the key developers of the multi-agent system Bang (system designed for hybrid models of artificial intelligence).

Education

2001 - 2007	PhD in Theoretical computer science, Faculty of Mathematics and Physics, Charles University, Prague.
	Topic of PhD thesis: *Learning with Regularization Networks.* Supervised by Mgr. Roman Neruda, CSc.
2003	RNDr. in Computer Science, Faculty of Mathematics and Physics, Charles University, Prague.
1995 - 2001	Mgr. in Computer Science, Faculty of Mathematics and Physics, Charles University, Prague.
	Master thesis: *Learning algorithms for RBF networks.* Supervised by Mgr. Roman Neruda, CSc.

Visits Abroad

February 2006	Machine Learning Summer School. Canberra, Australia. (Volunteering.)
April - June 2005, November 2005	Two visits at Edinburgh Parallel Computing Center (EPCC), Edinburgh University, United Kingdom.
	As a grantee of HPC-Europa project. Hosted by Prof. Ben Paechter, School of Computing, Napier University, Edinburgh.
July 2002	Neural Networks Summer School. Porto, Portugal.

Awards

Best Paper Award	conference ITAT, Slovakia, 2017, P. Vidnerová, R. Neruda. Evolution Strategies for Deep Neural Network Models Design.
Best Result of ICS	for the year 2022, in the cathegory *Publication with Application or Social Impact*
	awarded paper: L. Berec, R. Levínský, J. Weiner, M. Šmíd, R. Neruda, P. Vidnerová, G. Suchopárová: Importance of vaccine action and availability and epidemic severity for delaying the second vaccine dose. Scientific Reports, 2022

Teaching and Comittee Memberships

Courses	Evolutionary algorithms (practical course), The Faculty of Mathematics and Physics, Charles University, 2006-2008
Students	Rudolf Kadlec, The Faculty of Mathematics and Physics, Charles University
	supervising Rudolf's diploma thesis: Evolution of intelligent agent behaviour in computer games, 2008
Commitee Memberships	the opponent PhD thesis
	Ing. Martin Šlapák, FIT, Czech Technical University (2018, 2019) RNDr. Viliam Dillinger, Comenius University in Bratislava (2019) Ing. Dalibor Cimr, University of Hradec Králové (2023) Mgr. Peter Zvirinský, MFF, Charles University (2024) Mgr. Iveta Bečková, Comenius University in Bratislava (2024)

Current Projects

Optimalizace energetického portfolia pro zvýšení využitelnosti obnovitelných zdrojů, no. TS01020123, 2024-2026 (principal investigator)
LEDNeCo: Low Energy Deep Neurocomputing, Czech Grant Agency, no. 25-15490S, 2025-2027 (team member)
TRUST, OP JAK, 2025-2028 (activity leader)

DEZINFO, OP JAK, 2025-2028 (team member)
Strategie AV21, AI: Artificial Intelligence for Science and Society (AI in Science package coordinator)

Recent Projects

AppNeCo: Approximate Neurocomputing, Czech Grant Agency, no. 22-02067S, 2022-2024 (team member)
National Competence Center - Cybernetics and Artificial Intelligence, Technology Agency of the Czech Republic, no. TN01000024, 2019 - 2022 (team member)
Město pro lidi, ne pro virus - Technology Agency of the Czech Republic, no. TL04000282, 2020/21 (team member)
Capabilities and Limitations of Shallow and Deep Networks, Czech Grant Agency, no. 18-23827S, 2018-2020 (team member)
Model complexity of neural, radial, and kernel networks, Czech Grant Agency, no. 15-18108S, 2015-2017 (team member)

Selected Publications

G. Kadlecová, J. Lukasik, M. Pilát, P. Vidnerová, M. Safari, R. Neruda, F. Hutter, *Surprisingly Strong Performance Prediction with Neural Graph Features*, ICML, 2024.
(Citations: WOS: –, SCOPUS: –, Google Scholar: 2)
L. Berec, T. Diviák, A. Kuběna, R. Levínský, R. Neruda, G. Suchopárová, J. Šlerka, M. Šmíd, J. Trnka, V. Tuček, Petra Vidnerová, M. Zajíček, *On the contact tracing for COVID-19: A simulation study*, Epidemics, Volume 43, (2023), ISSN 1755-4365.
(Citations: WOS: 3, SCOPUS: 5, Google Scholar: 6)
J. Kalina, A. Neoral, P. Vidnerová. *Effective Automatic Method Selection for Nonlinear Regression Modeling.* International Journal of Neural Systems. Roč. 31, č. 10 (2021), paper no. 2150020. ISSN 0129-0657.
(Citations: WOS: 4, SCOPUS: 6, Google Scholar: 8)
P. Vidnerová, R. Neruda. *Vulnerability of classifiers to evolutionary generated adversarial examples.* Neural Networks. Volume 127, July 2020, p. 168-181. ISSN 0893-6080.
(Citations: WOS: 24, SCOPUS: 27, Google Scholar: 30)
S. Slušný, R. Neruda, P. Vidnerová. *Comparison of Behavior-based and Planning Techniques on the Small Robot Maze Exploration Problem.* Neural Networks. Volume 23, Issue 4 (2010), p. 560-567. ISSN 0893-6080.
(Citations: WOS: 2, SCOPUS: 5, Google Scholar: 12)
P. Kudová. *Clustering genetic algorithm.* Database and Expert Systems Applications. Los Alamitos: IEEE, 2007, p. 138-142. ISBN 978-0-7695-2932-5
(Citations: WOS: 14, SCOPUS: 24, Google Scholar: 68)
R. Neruda, P. Kudová. *Learning Methods for Radial Basis Functions Networks.* Future Generation Computer Systems. 21. (2005), p. 1131-1142. ISSN 0167-739X
(Citations: WOS: 64, SCOPUS: 80, Google Scholar: 132)

Selected Software

rbf_keras	Implementation of an RBF layer for the Keras library. Available at https://github.com/PetraVidnerova/rbf_keras (11 citations accoding to GoogleScholar, 144 Github stars)
Model M	Multiagent epidemic model. One of the key developers. Available at https://github.com/epicity-cz/model-m

Selected Talks

From perceptron to deep neural networks, 2019, Workshop Teorie a praxe statistického zpracování dat, Palacký University Olomouc, Nová Seninka.
Adversarial examples - vulnerability of machine learning methods and prevention, 2018, Seminar of the Institute of Information Theory and Automation of the Czech Academy of Sciences, Prague.
Evolving Architectures of Deep Neural Networks, 2018, Machine Learning and Modelling Seminar, The Faculty of Mathematics and Physics, Charles University, Prague.
Evolution of Composite Kernel Functions for Regularization Networks, 2011, Machine Learning and Modelling Seminar, The Faculty of Mathematics and Physics, Charles University, Prague.
Hybrid learning methods in Bang and Regularization Networks, 2005, department seminar at University of Edinburgh, UK.

Popularization

Talk *Co se skrývá za AutoML?*, Open Day, Institute of Computer Science, The Czech Academy of Sciences, 2024
Talk *Model M - an agent based epidemiological model*, at the BISOP book launch event, 2023.
Talk in Czech *Umělá inteligence: dobrý sluha, zlý pán?*, Open Day, Institute of Computer Science, The Czech Academy of Sciences, 2019.
Talk in Czech *Hluboké neuronové sítě*, Open Day, Institute of Computer Science, The Czech Academy of Sciences, 2017.
Joint talk with Roman Neruda at the seminar for high school teachers, Nové Hrady, 2008.

Community Service

professional	PC member, reviewer
	member of conference programme committees: AIAI 2016, AIAI 2018-2024, EANN 2015-2024, EML GECCO 2016-2025, IJCNN 2017, IJCNN 2019-2023, ICANN 2018, ICANN 2023, ICONIP 2023, ITAT 2009
	reviewing for scientific journals: Neural Processing Letters, IEEE Transactions on Cybernetics, Computing and Informatics, IEEE Transactions on Evolutionary Computations, Neural Networks, Natural Computing, Analytical Letters, IEEE Transactions on Neural Networks and Learning Systems, Computer Science Review, IEEE Sensors Journal, Computers & security;
	reviewer for GA UK
	working as a Scientific Secretary of Institute of Computer Science (since 2023)
	taking care of the blog of Institute of Computer Science (since 2015)
	BISOP, scientific board member (since 2020)
	http://bisop.cz

free-time	teaching at PyLadies.cz courses (since 2018)
	PyLadies is a community of female Python programmers helping women to get familiar with IT.
	author of machine learning study materials for data analysis course organised by PyLadies & PyData community (2020).

Languages

Czech	native
English	C1 (CAE certificate, 2006)
German	elementary

Other skills

Programming Languages	Python, bash (in past: Pascal, C/C++, MPI, Perl, PHP, SQL, JavaScript), basic knowledge of HTML and CSS
	familiar with Python libraries: numpy, pandas, matplotlib, seaborn, scikit-learn, Keras, TensorFlow, PyTorch, networkx AI Intel certificate
Other	LaTeX, git, enthusiastic Linux user