

RNDr. Valdemar Švábenský, Ph.D.

Postdoctoral Researcher & Instructor

🏠 *Kyushu University*, Faculty of Information Science and Electrical Engineering

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🌐 eLea.sk/valdemar

🔄 [valdemarsv](https://github.com/valdemarsv)

🌐 [valdemars](https://www.linkedin.com/in/valdemars)



1. Professional Work Experience

a. Academic Appointments (Full-time Positions)

2024/01 – now ★ **Postdoctoral Scholar.** *Kyushu University.* Fukuoka, Japan 🇯🇵

🏠 [Laboratory for Image and Media Understanding](#), Faculty of Information Science and El. Engineering.

👤 Advisor: [Prof. Atsushi Shimada, Ph.D.](#)

📖 Conducting research in educational data analytics and machine learning.

✓ Published 1 conference paper and 1 conference poster.

2022/09 – 2023/08 ★ **Postdoctoral Scholar.** *University of Pennsylvania.* Philadelphia, PA, USA 🇺🇸

🏠 [Penn Center for Learning Analytics](#), Graduate School of Education.

👤 Advisor: [Prof. Ryan S. Baker, Ph.D.](#)

📖 Conducting research in educational data analytics and machine learning. Co-teaching an in-person course in educational data mining.

✓ Published 3 conference papers (1 best paper award) and 1 conference poster.

2017/09 – 2022/08 ★ **Doctoral Researcher.** *Masaryk University.* Brno, Czech Republic 🇨🇪

🏠 [Cybersecurity Laboratory](#), Faculty of Informatics; in collaboration with CSIRT-MU.

👤 Advisor: [Assoc. Prof. Pavel Čeleda, Ph.D.](#) and [Assoc. Prof. Jan Vykopal, Ph.D.](#)

📖 Research in automated analysis of data from hands-on cybersecurity training to provide personalized feedback. Active participation in research grant projects aligned with my doctoral thesis.

✓ Published 7 journal papers, 15 conference papers (2 best paper awards), and 5 conference posters.

b. Academic Research Stays (Visiting Positions)

2023/11 – 2023/12 ★ **Researcher.** *Ateneo de Manila University.* Quezon City, Philippines 🇵🇭

🏠 [Ateneo Laboratory for the Learning Sciences](#), Dept. of Information Systems and Computer Science.

👤 Advisor: [Prof. Maria Mercedes T. Rodrigo, Ph.D.](#)

📖 Research in analytics of discussion forum posts and evaluating algorithmic bias of predictive models.

✓ Led to the publication of 2 conference posters.

2023/09 – 2023/09 ★ **Researcher.** *Sorbonne University.* Paris, France 🇫🇷

🏠 [Human Learning-Centered Computing](#), Laboratoire de recherche en informatique (LIP6).

👤 Advisor: [Assoc. Prof. François Bouchet, Ph.D.](#)

📖 Research in analytics of discussion forum posts and evaluating algorithmic bias of predictive models.

✓ Published 1 conference poster, initiated the collaboration with Ateneo de Manila University.

2022/03 – 2022/03 ★ **Researcher.** *Northern Kentucky University.* Highland Heights, KY, USA 🇺🇸

🏠 [School of Computing and Analytics](#), College of Informatics.

👤 Advisor: [Assoc. Prof. Ankur Chattopadhyay, Ph.D.](#)

📖 Research in learning analytics in the context of cybersecurity education.

✓ Led to the publication of 2 conference papers and the job position at University of Pennsylvania.

c. Other Research and Teaching Work Experience

2022/11 – 2022/12 ★ **Field Study Supervisor.** *Florida State University.* Tallahassee, FL, USA 🇺🇸

📖 Conducting a 5-day experiment on computer-supported learning of physics with 400 students at FSUS middle school.

✓ [Study website.](#)

1. Professional Work Experience (continued)

- 2014/09 – 2022/06 ★ **Instructor and Seminar Tutor.** *Masaryk University.* Brno, Czech Republic 🇨🇪
- 📖 See the section “7. Teaching Experience” and “8. Student Supervision” in this document.
 - ✓ Taught 7 courses, supervised 14 student theses, and received 2 university-wide teaching awards.
- 2018/08 – 2018/10 ★ **Team Coach.** *Masaryk University.* Brno, Czech Republic 🇨🇪 and London, UK 🇬🇧
- 📖 Coaching the Czech junior team in the European Cyber Security Challenge, an EU-wide competition with a national preparation phase and international finals taking place in London, UK.
 - ✓ [Team roster](#) and [competition website](#).

d. Industry Experience

- 2014/01 – 2020/05 ★ **Creator of Educational Videos.** *Datakabinet.* Bratislava, Slovakia 🇸🇰
- 📖 Creating 64 educational videos that cover primary school mathematics (for viewers aged 6 to 15). Full responsibility for the whole process, which combines creative, educational, and technical aspects.
 - ✓ [Datakabinet project website](#).
- 2019/02 – 2019/02 ★ **IT Project Consultant.** *Peter Stone Jewelry.* Bangkok, Thailand 🇹🇭
- 📖 Conceptual design of a data-driven system for managing the supply chain.
 - ✓ [Peter Stone website](#).
- 2016/06 – 2016/09 ★ **IT Project Manager.** *Datakabinet.* Bratislava, Slovakia 🇸🇰
- 📖 Supervising the development of a large educational portal. Specifying, analyzing, and prioritizing requirements. Testing the results, providing feedback, suggesting solutions. Writing technical documentation and user manuals.
 - ✓ [Datakabinet project website](#).

2. University Education

a. Doctoral Degree Level

- 2017/09 – 2022/07 ★ **Doctorate (Ph.D.),** *Masaryk University.* Brno, Czech Republic 🇨🇪
- 📖 Study program: Computing Technology and Methodology
 - 📖 Thesis: [Automated Feedback for Cybersecurity Training](#)
 - 🏆 **Dean's Award** for Doctoral Thesis

b. Master Degree Level

- 2017/09 – 2019/05 ★ **Advanced Master's exam (RNDr.),** *Masaryk University.* Brno, Czech Republic 🇨🇪
- 📖 Study program: Informatics
 - 📖 Thesis: [Toward an Automated Feedback System in Educational Cybersecurity Games](#)
- 2014/09 – 2017/06 ★ **Master's (Mgr., MSc. equivalent),** *Masaryk University.* Brno, Czech Republic 🇨🇪
- 📖 Study program: Information Technology Security
 - 📖 Thesis: [Prerequisite Testing of Cybersecurity Skills](#)
 - 🏆 **Dean's Award** for Master Thesis
- 2015/01 – 2015/06 ★ **Erasmus+ Exchange,** *University of Copenhagen.* Copenhagen, Denmark 🇩🇰
- 📖 Study program: Computer Science
 - 📖 Focus on courses in algorithms and applied data science

c. Bachelor Degree Level

- 2011/09 – 2014/06 ★ **Bachelor's (Bc., BSc. equivalent),** *Masaryk University.* Brno, Czech Republic 🇨🇪
- 📖 Study program: Computer Systems and Data Processing
 - 📖 Thesis: [Algebra and Number Theory Course Materials](#)
 - 🏆 **Dean's Awards** for Bachelor Thesis and Excellent Performance (among the best 1% of students)

3. Publication Profile

I published a total of **36 research outputs** with **55 distinct co-authors**.

a. Research Interests

- ★ **Educational data mining**, educational data science
- ★ **Learning analytics**
- ★ **Artificial intelligence in education**, AI in education
- ★ **Technologies for learning**, learning technologies, educational technologies
- ★ **Cybersecurity education**, security education, cyber security

b. Identifiers and Bibliometrics in Scientific Databases

Database	Profile ID and link	Total citations	h-index
Google Scholar	CSMVlfoAAAAJ	687	13
Scopus	57215670820	354	10
Web of Science	GPG-1431-2022	209	8
ORCID	0000-0001-8546-280X	–	–

c. Papers in International Peer-Reviewed Journals (Total: 7)

- 1 **V. Švábenský**, J. Vykopal, P. Čeleda, and J. Dovjak. “Automated Feedback for Participants of Hands-on Cybersecurity Training”. In: *Springer Education and Information Technologies* (2023). DOI: [10.1007/s10639-023-12265-8](#)
 - IF: **5,500** (in the year 2022)
 - Rank: **D1**
- 2 J. Vykopal, P. Seda, **V. Švábenský**, and P. Čeleda. “Smart Environment for Adaptive Learning of Cybersecurity Skills”. In: *IEEE Transactions on Learning Technologies* 16 (2022). DOI: [10.1109/TLT.2022.3216345](#)
 - IF: **3,700** (in the year 2022)
 - Rank: **Q2/Q1** (Q1 based on the Journal Citation Indicator)
- 3 **V. Švábenský**, J. Vykopal, P. Čeleda, and L. Kraus. “Applications of Educational Data Mining and Learning Analytics on Data From Cybersecurity Training”. In: *Springer Education and Information Technologies* (2022). DOI: [10.1007/s10639-022-11093-6](#)
 - IF: **5,500** (in the year 2022)
 - Rank: **D1**
- 4 **V. Švábenský**, J. Vykopal, P. Čeleda, K. Tkáčik, and D. Popovič. “Student Assessment in Cybersecurity Training Automated by Pattern Mining and Clustering”. In: *Springer Education and Information Technologies* (2022). DOI: [10.1007/s10639-022-10954-4](#)
 - IF: **5,500** (in the year 2022)
 - Rank: **D1**
- 5 **V. Švábenský**, J. Vykopal, P. Seda, and P. Čeleda. “Dataset of Shell Commands Used by Participants of Hands-on Cybersecurity Training”. In: *Elsevier Data in Brief* 38 (2021). DOI: [10.1016/j.dib.2021.107398](#)
 - IF: **N/A** (in the year 2021)
 - Rank: **Q2** (based on the Journal Citation Indicator)

- 6 V. Švábenský, P. Čeleda, J. Vykopal, and S. Brišáková. “Cybersecurity Knowledge and Skills Taught in Capture the Flag Challenges”. In: *Elsevier Computers & Security* 102 (2020). DOI: [10.1016/j.cose.2020.102154](https://doi.org/10.1016/j.cose.2020.102154)
- IF: 5.105 (in the year 2021 of the paper release)
 - Rank: Q2 (Q1 based on the Journal Citation Indicator)
- 7 R. Ošlejšek, V. Rusňák, K. Burská, V. Švábenský, J. Vykopal, and J. Čegan. “Conceptual Model of Visual Analytics for Hands-on Cybersecurity Training”. In: *IEEE Transactions on Visualization and Computer Graphics* 27 (2020). DOI: [10.1109/TVCG.2020.2977336](https://doi.org/10.1109/TVCG.2020.2977336)
- IF: 5.226 (in the year 2021 of the paper release)
 - Rank: Q1 (D1 based on the Journal Citation Indicator)

d. Papers in Proceedings of Peer-Reviewed International Conferences (Total: 21)

- 1 V. Švábenský, K. Tkáčik, A. Birdwell, R. Weiss, R. S. Baker, P. Čeleda, J. Vykopal, J. Mache, and A. Chattopadhyay. “Detecting Unsuccessful Students in Cybersecurity Exercises in Two Different Learning Environments”. In: *Proceedings of the 54th Frontiers in Education Conference*. 2024
- Main track (Research), full paper
 - ICORE conference rank: C
- 2 Y. Miyazaki, V. Švábenský, Y. Taniguchi, F. Okubo, T. Minematsu, and A. Shimada. “EzVec: Feature Embedding with Temporal Information for Analyzing Student Actions in E-Book Systems”. In: *Proceedings of the 17th International Conference on Educational Data Mining*. 2024. DOI: [10.5281/zenodo.12729854](https://doi.org/10.5281/zenodo.12729854)
- Main track, short paper
 - ICORE conference rank: B
- 3 V. Švábenský, J. Vykopal, M. Horák, M. Hofbauer, and P. Čeleda. “From Paper to Platform: Evolution of a Novel Learning Environment for Tabletop Exercises”. In: *Proceedings of the 29th Conference on Innovation and Technology in Computer Science Education*. 2024. DOI: [10.1145/3649217.3653639](https://doi.org/10.1145/3649217.3653639)
- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: B
- 4 J. Vykopal, P. Čeleda, V. Švábenský, M. Hofbauer, and M. Horák. “Research and Practice of Delivering Tabletop Exercises”. In: *Proceedings of the 29th Conference on Innovation and Technology in Computer Science Education*. 2024. DOI: [10.1145/3649217.3653642](https://doi.org/10.1145/3649217.3653642)
- Main track (Computing Education Research), full paper
 - ICORE conference rank: B
- 5 V. Švábenský, M. Pankiewicz, J. Zhang, E. B. Cloude, R. S. Baker, and E. Fouh. “Comparison of Three Programming Error Measures for Explaining Variability in CS1 Grades”. In: *Proceedings of the 29th Conference on Innovation and Technology in Computer Science Education*. 2024. DOI: [10.1145/3649217.3653563](https://doi.org/10.1145/3649217.3653563)
- Main track (Computing Education Research), full paper
 - ICORE conference rank: B
- 6 V. Švábenský, R. S. Baker, A. Zambrano, Y. Zou, and S. Slater. “Towards Generalizable Detection of Urgency of Discussion Forum Posts”. In: *Proceedings of the 16th International Conference on Educational Data Mining*. Ed. by M. Feng, T. Käser, and P. Talukdar. 2023. DOI: [10.5281/zenodo.8115790](https://doi.org/10.5281/zenodo.8115790)
- Main track, short paper
 - ICORE conference rank: B
 - ★ **Best Paper Award** in the Short Paper track
- 7 L. Kraus, V. Švábenský, V. Matyáš, M. Horák, J. Vykopal, and P. Čeleda. “Want to Raise Cybersecurity Awareness? Start with Future IT Professionals.” In: *Proceedings of the 28th Annual ACM Conference on Innovation and Technology in Computer Science Education*. 2023. DOI: [10.1145/3587102.3588862](https://doi.org/10.1145/3587102.3588862)

- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: **A**
- 8 V. Švábenský, R. Weiss, J. Cook, J. Vykopal, P. Čeleda, J. Mache, R. Chudovský, and A. Chattopadhyay. “Evaluating Two Approaches to Assessing Student Progress in Cybersecurity Exercises”. In: *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education*. 2022. DOI: [10.1145/3478431.3499414](https://doi.org/10.1145/3478431.3499414)
- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: **A**
- 9 J. Vykopal, V. Švábenský, P. Seda, and P. Čeleda. “Preventing Cheating in Hands-on Lab Assignments”. In: *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education*. 2022. DOI: [10.1145/3478431.3499420](https://doi.org/10.1145/3478431.3499420)
- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: **A**
 - ★ **Best Paper Award** in the Experience Reports and Tools track
- 10 V. Švábenský, J. Vykopal, D. Tovarňák, and P. Čeleda. “Toolset for Collecting Shell Commands and Its Application in Hands-on Cybersecurity Training”. In: *Proceedings of the 51st IEEE Frontiers in Education Conference*. 2021. DOI: [10.1109/FIE49875.2021.9637052](https://doi.org/10.1109/FIE49875.2021.9637052)
- Main track (Innovative Practice), full paper
 - ICORE conference rank: **C (B at the time of paper submission)**
- 11 J. Vykopal, P. Čeleda, P. Seda, V. Švábenský, and D. Tovarňák. “Scalable Learning Environments for Teaching Cybersecurity Hands-on”. In: *Proceedings of the 51st IEEE Frontiers in Education Conference*. 2021. DOI: [10.1109/FIE49875.2021.9637180](https://doi.org/10.1109/FIE49875.2021.9637180)
- Main track (Innovative Practice), full paper
 - ICORE conference rank: **C (B at the time of paper submission)**
- 12 P. Seda, J. Vykopal, V. Švábenský, and P. Čeleda. “Reinforcing Cybersecurity Hands-on Training With Adaptive Learning”. In: *Proceedings of the 51st IEEE Frontiers in Education Conference*. 2021. DOI: [10.1109/FIE49875.2021.9637252](https://doi.org/10.1109/FIE49875.2021.9637252)
- Main track (Research to Practice), full paper
 - ICORE conference rank: **C (B at the time of paper submission)**
- 13 R. Motschnig, M. Silber, and V. Švábenský. “How Does a Student-Centered Course on Communication and Professional Skills Impact Students in the Long Run?” In: *Proceedings of the 50th IEEE Frontiers in Education Conference*. 2020. DOI: [10.1109/FIE44824.2020.9273962](https://doi.org/10.1109/FIE44824.2020.9273962)
- Main track (Research to Practice), full paper
 - ICORE conference rank: **B**
- 14 V. Švábenský, J. Vykopal, and P. Čeleda. “What Are Cybersecurity Education Papers About? A Systematic Literature Review of SIGCSE and ITiCSE Conferences”. In: *Proceedings of the 51st ACM Technical Symposium on Computer Science Education*. 2020. DOI: [10.1145/3328778.3366816](https://doi.org/10.1145/3328778.3366816)
- Main track (Computing Education Research), full paper
 - ICORE conference rank: **A**
 - ★ **Best Paper Award** in the Computing Education Research track
- 15 J. Vykopal, V. Švábenský, and E.-C. Chang. “Benefits and Pitfalls of Using Capture the Flag Games in University Courses”. In: *Proceedings of the 51st ACM Technical Symposium on Computer Science Education*. 2020. DOI: [10.1145/3328778.3366893](https://doi.org/10.1145/3328778.3366893)
- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: **A**
- 16 P. Čeleda, J. Vykopal, V. Švábenský, and K. Slaviček. “KYPO4INDUSTRY: A Testbed for Teaching Cybersecurity of Industrial Control Systems”. In: *Proceedings of the 51st ACM Technical Symposium on Computer Science Education*. 2020. DOI: [10.1145/3328778.3366908](https://doi.org/10.1145/3328778.3366908)

- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: **A**
- 17 R. Ošlejšek, V. Rusňák, K. Burská, **V. Švábenský**, and J. Vykopal. “Visual Feedback for Players of Multi-Level Capture the Flag Games: Field Usability Study”. In: *Proceedings of the 16th IEEE Symposium on Visualization for Cyber Security*. 2019. DOI: [10.1109/VizSec48167.2019.9161386](https://doi.org/10.1109/VizSec48167.2019.9161386)
- Main track, full paper
 - ICORE conference rank: **C**
- 18 M. Ukrop, **V. Švábenský**, and J. Nehyba. “Reflective Diary for Professional Development of Novice Teachers”. In: *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*. 2019. DOI: [10.1145/3287324.3287448](https://doi.org/10.1145/3287324.3287448)
- Main track (Experience Reports and Tools), full paper
 - ICORE conference rank: **A**
- 19 **V. Švábenský** and J. Vykopal. “Gathering Insights from Teenagers’ Hacking Experience with Authentic Cybersecurity Tools”. In: *Proceedings of the 48th IEEE Frontiers in Education Conference*. 2018. DOI: [10.1109/FIE.2018.8658840](https://doi.org/10.1109/FIE.2018.8658840)
- Main track (Innovative Practice), work-in-progress paper
 - ICORE conference rank: **B**
- 20 **V. Švábenský**, J. Vykopal, M. Cermak, and M. Laštovička. “Enhancing Cybersecurity Skills by Creating Serious Games”. In: *Proceedings of the 23rd Annual ACM Conference on Innovation and Technology in Computer Science Education*. 2018. DOI: [10.1145/3197091.3197123](https://doi.org/10.1145/3197091.3197123)
- Main track, full paper
 - ICORE conference rank: **A**
- 21 **V. Švábenský** and J. Vykopal. “Challenges Arising from Prerequisite Testing in Cybersecurity Games”. In: *Proceedings of the 40th ACM Technical Symposium on Computer Science Education*. 2018. DOI: [10.1145/3159450.3159454](https://doi.org/10.1145/3159450.3159454)
- Main track (Computing Education Research), full paper
 - ICORE conference rank: **A**

e. Poster Papers in Proceedings of Peer-Reviewed International Conferences (Total: 8)

- 1 I. Lodovico Molina, **V. Švábenský**, T. Minematsu, L. Chen, F. Okubo, and A. Shimada. “Comparison of Large Language Models for Generating Contextually Relevant Questions”. In: *Proceedings of the 19th European Conference on Technology Enhanced Learning*. 2024
- Poster track (submitted as full paper)
 - ICORE conference rank: **B**
- 2 **V. Švábenský**, M. Verger, M. M. T. Rodrigo, C. J. G. Monterozo, R. S. Baker, M. Z. N. L. Saavedra, S. Lallé, and A. Shimada. “Evaluating Algorithmic Bias in Models for Predicting Academic Performance of Filipino Students”. In: *Proceedings of the 17th International Conference on Educational Data Mining*. 2024. DOI: [10.5281/zenodo.12729936](https://doi.org/10.5281/zenodo.12729936)
- Poster track (submitted as short paper)
 - ICORE conference rank: **B**
- 3 **V. Švábenský**, F. Bouchet, F. Tarrazona, M. Lopez II, and R. S. Baker. “Data Set Size Analysis for Detecting the Urgency of Discussion Forum Posts”. In: *Companion Proceedings of the 14th International Learning Analytics and Knowledge Conference*. 2024. URL: <https://www.solaresearch.org/core/companion-proceedings-of-the-14th-international-learning-analytics-and-knowledge-conference-lak24/>
- Poster track
 - ICORE conference rank: **A**

- 4 M. Gáliková, V. Švábenský, and J. Vykopal. “Toward Guidelines for Designing Cybersecurity Serious Games”. In: *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. 2021. DOI: [10.1145/3408877.3439568](https://doi.org/10.1145/3408877.3439568)
 - Poster track
 - ICORE conference rank: A
- 5 V. Švábenský and M. Ukrop. “The Stack: Unplugged Activities for Teaching Computer Science”. In: *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. 2021. DOI: [10.1145/3408877.3439569](https://doi.org/10.1145/3408877.3439569)
 - Poster track
 - ICORE conference rank: A
- 6 M. Ukrop, V. Švábenský, and I. Nagy. “Teaching Lab: Training Novice Computer Science Teachers”. In: *Proceedings of the 25th Annual ACM Conference on Innovation and Technology in Computer Science Education*. 2020. DOI: [10.1145/3341525.3393967](https://doi.org/10.1145/3341525.3393967)
 - Poster track
 - ICORE conference rank: A
- 7 V. Švábenský, J. Vykopal, and P. Čeleda. “Towards Learning Analytics in Cybersecurity Capture the Flag Games”. In: *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*. 2019. DOI: [10.1145/3287324.3293816](https://doi.org/10.1145/3287324.3293816)
 - Poster track
 - ICORE conference rank: A
- 8 V. Švábenský. “Analyzing User Interactions with Cybersecurity Games”. In: *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*. 2019. DOI: [10.1145/3287324.3293717](https://doi.org/10.1145/3287324.3293717)
 - Student research competition track
 - ICORE conference rank: A

4. Awards and Prizes

a. International Research Publication Awards

- 2023 ★ **Best Paper** in the Short Paper Track. Educational Data Mining Conference.
- 2022 ★ **Best Paper** in the Experience Reports and Tools Track. ACM SIGCSE Technical Symposium.
- 2020 ★ **Best Paper** in the Computing Education Research Track. ACM SIGCSE Technical Symposium.

b. Teaching Awards

- 2019 ★ **Rector’s Award for Outstanding Teachers & The Memorial Medal**. Masaryk University.
- 2016 ★ **Award for the Best Student Educators**. Students’ Chamber of the Masaryk University’s Senate.

c. Other Academic Awards

- 2022 ★ **Dean’s Award** for Doctoral Thesis. Masaryk University, Faculty of Informatics.
- 2017 ★ **Dean’s Award** for Master Thesis. Masaryk University, Faculty of Informatics.
- 2014 ★ **Dean’s Award** for Bachelor Thesis. Masaryk University, Faculty of Informatics.
- 2014 ★ **Dean’s Award** for Excellent Academic Performance. Masaryk University, Faculty of Informatics.

d. Competition Prizes

- 2022 ★ **Joseph Fourier Prize for Computer Sciences (1st place)**.
French Embassy & Institut français de Prague & Atos.

5. Involvement in Grant Research Projects

a. Principal Investigator

2025 ★ **Project proposal under peer review** (currently not publicly disclosed).

b. Professional Team Member – Current

2024/01 – now ★ **A Development of Reliable Learning Analytics Platform and its Advanced Applications for Teaching and Learning Support** (ReLAX). Kyushu University, Japan •

- 🏛️ Funding agency (award provider): *Japan Science and Technology Agency (JST)*
- 📄 Program name within the tender: *CREST, Trusted Quality AI Systems*
- 📄 Award ID (registration number): 111109_2022
- 👤 My role: Evaluation of machine learning models for supporting educational outcomes.

c. Professional Team Member – Past






- 2023/10 – 2023/11 ★ **Intelligent Tools for Planning, Conducting, and Evaluating Tabletop Exercises** (INJECT). Masaryk University, Czech Republic 🇨🇪
- 🏛️ Funding agency (award provider): *Ministry of the Interior of the Czech Republic*
 - 📄 Program name within the tender: *Open Calls for Security Research 2023–2029 (OPSEC)*
 - 📄 Award ID (registration number): VK01030007
 - 👤 My role: Automatic analysis of student data from a novel platform for cybersecurity education.
- 2022/09 – 2023/08 ★ **Cyber Infrastructure for Shared Algorithmic and Experimental Research in Online Learning** (RAILKaM). University of Pennsylvania, PA, USA 🇺🇸
- 🏛️ Funding agency (award provider): *U.S. National Science Foundation (NSF)*
 - 📄 Program name within the tender: *Collaborative Research: Frameworks*
 - 📄 Award ID (registration number): 1931419
 - 👤 My role: Evaluating machine learning models for educational data mining and learning analytics.
- 2019/03 – 2022/08 ★ **Cyber Security Network of Competence Centres for Europe** (CyberSec4Europe). Masaryk University, Czech Republic 🇨🇪
- 🏛️ Funding agency (award provider): *European Union (EU)*
 - 📄 Program name within the tender: *Horizon 2020*
 - 📄 Award ID (registration number): 830929
 - 👤 My role: Research evaluation and development of **Cyber Sandbox Creator**, an open-source, lightweight learning environment for cybersecurity used by 7 universities in 5 countries.
- 2019/01 – 2022/08 ★ **CyberSecurity, CyberCrime and Critical Information Infrastructures Center of Excellence** (C4e). Masaryk University, Czech Republic 🇨🇪
- 🏛️ Funding agency (award provider): *European Regional Development Fund (ERDF)*
 - 📄 Program name within the tender: *Operational Programme Research, Development and Education*
 - 📄 Award ID (registration number): EF16_019/0000822 (CZ.02.1.01/0.0/0.0/16_019/0000822)
 - 👤 My role: Conducting basic research in data science intersecting the cybersecurity domain.
- 2017/01 – 2018/12 ★ **Simulation, Detection, and Mitigation of Cyber Threats Endangering Critical Infrastructure** (KYPO II). Masaryk University, Czech Republic 🇨🇪
- 🏛️ Funding agency (award provider): *Ministry of the Interior of the Czech Republic*
 - 📄 Program name within the tender: *CREST, Trusted Quality AI Systems*
 - 📄 Award ID (registration number): VI20162019014
 - 👤 My role: Design and evaluation of **KYPO Cyber Range Platform**, an open-source, complex learning environment for cybersecurity training used by several universities to conduct hands-on exercises.

6. Competencies and Achievements

a. Skills

Coding ★ **Python** (proficient), **R** (basics), **HTML/CSS** (basics), **LaTeX** (proficient)
Technologies ★ **Git** (user-level), **Vagrant + Ansible** (user-level)

6. Competencies and Achievements (continued)

- Software/tools ★ PyCharm, Google Colab, Google Workspace, Overleaf, Camtasia Studio
- Research skills ★ Data analysis, statistics
- Soft skills ★ Teaching, project management, creativity, non-violent communication
- Languages ★  Slovak (native),  English (fluent, C1),  Czech (fluent, C1),
•  Japanese (minimal, A1),  Spanish (minimal, A1)

b. Certifications

- 2019 ★ **Driver's License** (type B). Issued by the *Ministry of Transport of the Czech Republic*.
- 2018 ★ **IQ Test Result: 140**. Issued by *Mensa*.
- 2017 ★ **Essentials of Scientific Work**. Issued by the *Czech Academy of Sciences*.
- 2011 ★ **Cambridge First Certificate in English** (FCE). Issued by the *British Council*.

c. Open-Source Software Contributions

- 2023 ★ **INJECT Exercise Platform**, virtual training platform for tabletop exercises.
- 2017–2022 ★ **KYPO Cyber Range Platform**, virtual training platform for cybersecurity.
- 2019–2022 ★ **Cyber Sandbox Creator**, tool for building locally virtualized environments.
- 2013–2014 ★ **Numbermat**, math problem generator and solver.






d. Educational Projects

- 2012–now ★ **Elea: Teach Yourself Math**, 95 free educational YouTube videos about mathematics.
- 2018–2021 ★ **The Stack**, 30 free teaching activities for understanding computer science concepts.
- 2017–2019 ★ **Teacher's Reflective Diary**, a journal for supplementing teacher reflection.
- 2018 ★ **Cybersecurity Educational Resources**, a comprehensive list of useful materials.

7. Teaching Experience

a. University of Pennsylvania – Courses Taught Weekly

1 EDUC6191 **Core Methods in Educational Data Mining**




-  Time period: Fall 2022 (1 semester)
-  Student population: 42 undergraduate and graduate students
-  Teaching content: Association rule mining, sequential pattern mining, text mining
-  Teaching methods: Lecture, exercise, discussion (in-class and online), quiz, programming homework
-  Co-teaching with: Ryan S. Baker

b. Masaryk University – Courses Taught Weekly

1 PV276 **Seminar on Simulation of Cyber Attacks** (formerly PV177 Laboratory of Advanced Network Technologies)

-  Time period: Spring 2018–2020 and 2022, Fall 2018–2020 (7 semesters)
-  Student population: 18–24 undergraduate and graduate students
-  Teaching content: Cybersecurity training design, development, deployment, and presentation
-  Teaching methods: Lecture, exercise, team project, student presentations
-  Co-teaching with: Jan Vykopal, Pavel Čeleda, Milan Čermák, Martin Laštovička, Daniela Belajová
-  Related published paper: [Enhancing Cybersecurity Skills by Creating Serious Games](#)

2 IB111 **Foundations of Programming**

-  Time period: Fall 2014–2020 (7 semesters)
-  Student population: 1–2 groups of 15–21 undergraduate students
-  Teaching content: Introduction to programming concepts demonstrated in Python

- ⚙️ Teaching methods: Lecture, exercise (programming and unplugged), discussion, quiz, group work, homework
- 👤 Co-teaching with: 6 different junior teaching assistants from 2017 to 2020

3 DUCIT **Teaching Lab**

- 📅 Time period: Fall 2017–2018, Spring 2019 (3 semesters)
- 🎓 Student population: 20–30 undergraduate and graduate students
- 📖 Teaching content: Hands-on teaching activities, reflection, norms, teaching tools
- ⚙️ Teaching methods: Lecture, exercise, discussion
- 👤 Co-teaching with: Ondřej Příbyla, Martin Ukrop, Martin Macák
- 📄 Related published paper: [Teaching Lab: Training Novice Computer Science Teachers](#)

4 PV206 **Communication and Soft Skills**

- 📅 Time period: Fall 2016–2017, Spring 2017–2018 (4 semesters)
- 🎓 Student population: 15–20 graduate students
- 📖 Teaching content: Communication theories, teamwork, conflict management
- ⚙️ Teaching methods: Hands-on activities, reflection, group discussion
- 👤 Co-teaching with: Renate Motschnig, Vlasta Bukačová, Petra Kalábová
- 📄 Related published paper: [How Does a Student-Centered Course on Communication and Professional Skills Impact Students in the Long Run?](#)

5 PBo07 **Software Engineering I**

- 📅 Time period: Fall 2014–2015 (2 semesters)
- 🎓 Student population: 2 groups of 15–24 undergraduate students
- 📖 Teaching content: Software requirements analysis and specification, UML modeling
- ⚙️ Teaching methods: Lecture, exercise, team project
- 👤 Co-teaching with: Barbora Bůhnová

c. Masaryk University – Single Seminar Taught Within Weekly Courses

1 PV080 **Information Security and Cryptography**

- 📅 Time period: Fall 2020, Spring 2021–2022 (3 semesters)
- 🎓 Student population: 200–250 undergraduate students
- 📖 Teaching content: Network attacks, authentication, Telnet, SSH, traffic capture and analysis
- ⚙️ Teaching methods: Lecture, exercise, homework
- 👤 Co-teaching with: Jan Vykopal
- 📄 Related published paper: [Preventing Cheating in Hands-on Lab Assignments](#)

2 PA197 **Secure Network Design**

- 📅 Time period: Spring 2018–2020 (3 semesters)
- 🎓 Student population: 30–33 graduate students
- 📖 Teaching content: Network reconnaissance, scanning, system exploitation
- ⚙️ Teaching methods: Exercise, homework
- 👤 Co-teaching with: Jan Vykopal

d. Courses and Seminars Taught for High School Students

1 PYTH01 **Simple Game Development in Python** (*course for prospective students at Masaryk University*)

- 📅 Time period: Fall 2016–2017 (2 semesters)
- 🎓 Student population: 15–20 high school students
- 📖 Teaching content: Python essentials, 2D games in Python using the PyGame module
- ⚙️ Teaching methods: Lecture, exercise, team project
- 👤 Co-teaching with: Jaroslav Čechák

2 **Basics of Python** (*workshop for a nation-wide initiative to teach IT skills to high-school girls*)

- 📅 Time period: 2017
- 🎓 Student population: 10 high school students

- 📖 Teaching content: Python essentials
- ⚙️ Teaching methods: Lecture, exercise
- 👤 Co-teaching with: –

8. Student Supervision and Individual Mentoring

a. Supervising Students' Theses (Total: 14, out of which 4 received the Dean's Award)

Master's theses:

- 1 K. Tkáčik: [Predicting Student Success in Cybersecurity Training](#), def. 2023 🏆
- 2 J. Dovjak: [Evaluation of Tools for Providing Feedback in Cybersecurity Training](#), def. 2022
- 3 M. Gáliková: [Methods for Designing Educational Cybersecurity Games](#), def. 2022 🏆
- 4 J. Jelínek: [Qualitative Analysis of Processes of Solving Tasks in a Cybersecurity Educational Game](#), def. 2022
- 5 J. Demčák: [Web Application for Automated Feedback to Participants of Cybersecurity Training](#), def. 2021
- 6 L. Hemalová: [Analysis of Errors Made by Participants of Cybersecurity Training](#), def. 2021

Bachelor's theses:

- 1 M. Salášek: [Lexical Analysis of Linux Commands from Cybersecurity Training](#), def. 2021
- 2 L. Majdan: [Automatic Parsing of Linux Commands Grammar and Contextual Information from Cybersecurity Training](#), def. 2021
- 3 D. Popovič: [Clustering of Command Histories from Cybersecurity Training](#), def. 2021
- 4 K. Tkáčik: [Pattern Mining in Command Histories from Cybersecurity Training](#), def. 2020 🏆
- 5 A. Skrášek: [Infrastructure for Collecting Command Histories from Cybersecurity Training](#), def. 2020
- 6 R. Chudovský: [Modeling Progress Through Cybersecurity Training Using Command Histories](#), def. 2020 🏆
- 7 S. Brišáková: [Analyzing Written Solutions of Tasks in Cybersecurity Capture the Flag Games](#), def. 2020
- 8 D. Pilár: [Integrating Tests and Questionnaires into Cybersecurity Games in the KYPO Cyber Range](#), def. 2018

b. Consulting Students' Theses (Total: 1)

Master's theses:

- 1 A. Farkas: [Portable Virtual Cybersecurity Labs](#), def. 2021

c. Reviewing Students' Theses (Total: 9)

Master's theses:

- 1 L. Majdan: [Cheating Detection in KYPO Cyber Range Platform](#), def. 2024
- 2 D. Filakovský: [Hands-on Cybersecurity Training for a Platform as a Service Environment](#), def. 2022
- 3 J. Ziková: [Integration and Performance Tests of the Cyber Sandbox Creator Software](#), def. 2021
- 4 O. Svoreň: [Reconstruction of Processes in Cyber Exercises and Their Basic Visualization](#), def. 2020

Bachelor's theses:

- 1 B. Olšáková: *Enhancing Hands-On Class Delivery: Leveraging the KYPO Cyber Range Platform*, def. 2024
- 2 R. Lukáč: *Comparison of Cybersecurity Games*, def. 2021
- 3 D. Košč: *Automated Problem Generation for Cybersecurity Games*, def. 2021
- 4 J. Knor: *Gamified system-testing: An application for the research purposes of performance examination*, def. 2021
- 5 L. Pavelů: *Adaptive cybersecurity games*, def. 2021

d. Student Advising on Projects (in Addition to Those Above)

Master students:

- 1 E. Cereza and R. David: “Clustering and LLM analysis of exercise data”, at Kyushu University, 2024
- 2 Y. Miyazaki: “E2Vec: Feature Embedding with Temporal Information for Analyzing Student Actions in E-Book Systems”, at Kyushu University, 2024
- 3 M. Hofbauer: “From Paper to Platform: Evolution of a Novel Learning Environment for Tabletop Exercises”, at Masaryk University, 2023
- 4 Y. Zou: “Towards Generalizable Detection of Urgency of Discussion Forum Posts”, at University of Pennsylvania, 2023

Bachelor students:

- 1 M. Lopez II: “Data Set Size Analysis for Predicting the Urgency of Discussion Forum Posts”, at Ateneo de Manila University, 2023–2024
- 2 F. Tarrazona: “Data Set Size Analysis for Predicting the Urgency of Discussion Forum Posts”, at Ateneo de Manila University, 2023
- 3 C. Monterozo: “Evaluating Algorithmic Bias in Models for Predicting Academic Performance of Filipino Students”, at Ateneo de Manila University, 2023

9. Presentations and Talks

a. Conference Paper Presentations (Total: 6)

- | | | |
|---------|---|------------------------|
| 2022/02 | ★ “Evaluating Two Approaches to Assessing Student Progress in Cybersecurity Exercises”
<i>ACM SIGCSE Technical Symposium</i> | Providence, RI, USA 🇺🇸 |
| 2021/10 | ★ “Toolset for Collecting Shell Commands and Its Application in Hands-on Cybersecurity Training”
<i>IEEE Frontiers in Education</i> | (Virtual presentation) |
| 2020/03 | ★ “What Are Cybersecurity Education Papers About? A Systematic Literature Review of SIGCSE and ITiCSE Conferences”
<i>ACM SIGCSE Technical Symposium</i> | Portland, OR, USA 🇺🇸 |
| 2018/10 | ★ “Gathering Insights from Teenagers’ Hacking Experience with Authentic Cybersecurity Tools”
<i>IEEE Frontiers in Education</i> | San Jose, CA, USA 🇺🇸 |
| 2018/07 | ★ “Enhancing Cybersecurity Skills by Creating Serious Games”
<i>ACM Conference on Innovation and Technology in Computer Science Education</i> | Larnaca, Cyprus 🇨🇵 |
| 2018/02 | ★ “Challenges Arising from Prerequisite Testing in Cybersecurity Games”
<i>ACM SIGCSE Technical Symposium</i> | Baltimore, MD, USA 🇺🇸 |

9. Presentations and Talks (continued)

b. Conference Poster and Other Presentations (Total: 5)

- 2024/03 ★ “Data Set Size Analysis for Predicting the Urgency of Discussion Forum Posts”
Learning Analytics and Knowledge (LAK) Conference Kyoto, Japan •
- 2021/03 ★ “Toward Guidelines for Designing Cybersecurity Serious Games”
ACM SIGCSE Technical Symposium (Virtual presentation)
- 2021/03 ★ “The Stack: Unplugged Activities for Teaching Computer Science”
ACM SIGCSE Technical Symposium (Virtual presentation)
- 2019/02 ★ “Towards Learning Analytics in Cybersecurity Capture the Flag Games”
ACM SIGCSE Technical Symposium Minneapolis, MN, USA 🇺🇸
- 2019/02 ★ “Analyzing User Interactions with Cybersecurity Games”
ACM SIGCSE Technical Symposium Minneapolis, MN, USA 🇺🇸

c. Invited Research Talks at Universities (Total: 8)

- 2024/01 ★ “Ongoing Research in Learning Analytics”
Research group meeting Kyushu University, Japan •
- 2023/12 ★ “Educational Data Mining and Cybersecurity”
Research group meeting Chulalongkorn University, Thailand 🇹🇭
- 2023/11 ★ “Algorithmic Bias in Models for Predicting Student Success”
Informatics colloquium Ateneo de Manila University, Philippines 🇵🇭
- 2023/09 ★ “Automated Feedback for Participants of Hands-on Cybersecurity Training”
Informatics colloquium Sorbonne University, France 🇫🇷
- 2023/02 ★ “Detection of Student Success in Cybersecurity Exercises”
Informatics colloquium Carnegie Mellon University, PA, USA 🇺🇸
- 2023/02 ★ “Approaches to Cybersecurity Education and Training”
Informatics colloquium Ateneo de Manila University (Virtual presentation)
- 2022/03 ★ “Scalable Learning Environments for Teaching Cybersecurity Hands-on”
Informatics colloquium Northern Kentucky University, KY, USA 🇺🇸
- 2018/06 ★ “KYPO Cyber Range Platform Capabilities”
Nation-wide research group meeting Masaryk University, Czech Republic 🇨🇪

d. Other Invited Talks (Total: 9)

- 2023/09 ★ “Employment opportunities with a computer science degree”
Event for introducing high-school students to university education (Virtual presentation)
- 2022/08 ★ “Journey of a Ph.D. graduate”
Summer school for Ph.D. students Masaryk University, Telč, Czech Republic 🇨🇪
- 2021/08 ★ “Privacy and its protection”
Project for introducing cybersecurity aspects to general public Bratislava, Slovakia 🇸🇰
- 2020/08 ★ “Journey of a Ph.D. student”
Summer school for Ph.D. students Masaryk University, Telč, Czech Republic 🇨🇪
- 2018/10 ★ “What’s it like to study computer science at a university?”
Event for introducing high-school students to university education Zvolen, Slovakia 🇸🇰
- 2017/06 ★ “Experience of an award-winning teaching assistant”
Conference on the teaching competence development Masaryk University, Brno, Czech Republic 🇨🇪
- 2017/03 ★ “Make learning great again: It’s the how, not what”
PyCon SK: Annual international Python conference Bratislava, Slovakia 🇸🇰

9. Presentations and Talks (continued)

- 2016/10 ★ “From (Python) zero to hero: How beginner university students learn programming”
PyCon CZ: Annual international Python conference Brno, Czech Republic 🇨🇪
- 2014/07 ★ “Faculty of informatics and us”
Student graduation ceremony Masaryk University, Brno, Czech Republic 🇨🇪

10. Academic Service to the Research Community

a. Peer Review for Journals (Total: 8 Papers)

- Springer Education and Information Technologies* ★ 3 papers: 2024/02, 2023/11, 2023/04
- IEEE Transactions on Learning Technologies* ★ 1 paper: 2024/07
- ACM Transactions on Computing Education* ★ 1 paper: 2024/05
- Journal of Educational Data Mining* ★ 1 paper: 2024/02
- Elsevier Computers & Security* ★ 1 paper: 2021/11
- IEEE Transactions on Education* ★ 1 paper: 2020/12

b. Peer Review for Conferences (Total: 17 Papers)

- ACM SIGCSE Technical Symposium* ★ 13 papers: 2024/08 (2), 2020/09 (2), 2019/09 (4), 2018/09 (5)
- International Conf. on Computers in Education* ★ 3 papers: 2024/06 (3)
- Artificial Intelligence in Education (AIED)* ★ 1 paper: 2023/03 (1)

11. Further Involvement With the Research Community

a. Active Participation at International Conferences (Total: 9)

- ACM SIGCSE Technical Symposium* ★ 2022, 2021, 2020, 2019, 2018
- ACM ITiCSE Conference* ★ 2018
- IEEE Frontiers in Education* ★ 2021, 2018
- Learning Analytics and Knowledge (LAK)* ★ 2024

b. Professional Affiliations and Memberships in Research Organizations

- SIG for Computer Science Education (SIGCSE)* ★ Member: 2020, 2019, 2018
- Society for Learning Analytics Research (SoLAR)* ★ Member: 2025, 2024

12. Media Presence

a. Newspaper and Magazine Articles (General)

- 2022/06 ★ Atos v rámci 12. ročníku Ceny Josepha Fouriera ocenil mladé talenty v oblasti počítačových věd, [FeedIT.cz](#)
- 2020/04 ★ Diplomý nerozdáme „kontumačně“, odmítá snížit nároky oceňovaný pedagog, [iDNES.cz](#)
- 2019/09 ★ Pilíře školy. Tři učitelé z Masarykovy univerzity v Brně získali ocenění, [Brněnský deník](#)

b. Newspaper and Magazine Articles (University-Affiliated)

- 2022/06 ★ Studenti MU získali čtyři ceny francouzského velvyslanectví, [Magazín M](#)
- 2020/03 ★ Den učitelů: Kdo jsou nejlepší pedagogové na MUNI?, [Magazín M](#)
- 2019/12 ★ Recept nejlepšího učitele: Tykání i pevná pravidla, [Magazín M](#)
- 2019/09 ★ Univerzita zahájila akademický rok oceněním nejlepších pedagogů, [Magazín M](#)

12. Media Presence (continued)

- 2016/11 ★ Nejlepší studentští učitelé: Sázíme na neformální přístup a uvolněnou atmosféru, [Magazín M](#)
2016/11 ★ Ceny pro nejlepší učitele: Dobrého pedagoga dělá příprava i přístup ke studentům, [Magazín M](#)

c. Other Online Articles (University-Affiliated)

- 2023/12 ★ Visit of Dr. Valdemar Švábenský, [Ateneo de Manila University](#)
2023/10 ★ Český vědec v srdci Paříže: Doktor Švábenský o stáži na Sorbonne Université, [Masaryk University](#)

d. Podcast Interviews

- 2022/08 ★ PhD, pedagogika a příprava, [Místo problémů](#)
2017/03 ★ Valdemar Švábenský about teaching Python, [Coding Teacher Podcast](#)

e. Promotional Videos

- 2021/07 ★ Inspirujte! Valdemar Švábenský, Fakulta informatiky MU, [Masaryk University](#)

13. References

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