MICHAL BOREK

• (517)980-3231 • | borekmi1@msu.edu | (517) 980-3231 | www.linkedin.com/in/michal-borek2003

EDUCATION

Michigan State University, College of Engineering East Lansing, MI
Bachelor of Science, Computational Data Science, GPA: 3.84 August 2022 - May 2026
Minor in Mathematics, Honors College

PROFESSIONAL SUMMARY

Deep-learning researcher & software engineer with 2+ years optimizing PyTorch medical-imaging models and building AI Agent infrastructure on HPC clusters. Co-author SPIE '25 paper; created a multi-GPU SLURM agent powered by a fine-tuned LlamaCode-13B large-language model that cuts queue wait by 30 %. Adept in Python, CUDA, Docker, and distributed training; eager to ship production ML at scale.

EXPERIENCE

Institute for Quantitative Health Science & Engineering East Lansing, MI
Research Assistant November 2023 - Present

- Designed a modular deep-learning pipeline in PyTorch for ordinal medical-image grading; optimized hyper-parameters (learning rate, loss, epochs) achieving 12 pp accuracy gain over baseline
- Visualized CNN embeddings with UMAP/t-SNE, informing custom loss-function design for better class separation
- Leveraged Captum (Grad-CAM, Integrated Gradients) to produce saliency maps improved clinician trust
- Automated 100+ multi-GPU experiments via SLURM scripts; standardized result logging for 100 % reproducibility
- Synthesized findings into a SPIE 2025 manuscript and delivered oral presentations at UURAF 2025, demonstrating clear communication of complex optimization concepts to diverse audiences

ENGINEERING EXPERIENCE

Institute for Cyber-Enabled Research (iCER) East Lansing, MI
Software Engineer June 2023 - Present

- Built a Python AI agent parses SLURM job scripts, fix errors and predicts optimal CPU/GPU/memory requests using a LlamaCode-13B model served through Ollama, reducing average queue wait 30 % across monthly jobs
- Wrapped agent into OnDemand interface, onboarding 40+ researchers in first month
- Packaged large-language-model workflows into one-command launch scripts, boosting adoption across lab groups
- Authored and delivered Python curriculum (basics, NumPy, best practices) for 50+ HPC users

Department of Computer Science at MSU East Lansing, MI
Undergraduate Teaching Assistant December 2022 - December 2023

- Launched and facilitated weekly Python/OOP recitation sessions for ≈ 40 students, collaborating with lead professor and three fellow TAs to align lesson plans; boosted average exam scores by ~12 % (≈ 0.4 letter grade)
- Spearheaded design of an auto-graded lab suite (unit-test harness + rubric) and trained the TA team on its use, cutting collective grading turnaround by 30 % while reinforcing algorithmic-complexity and clean-code principles

PUBLICATIONS

- Liu, M., Loveless, I., Huang, Z., **Borek, M.**, Rosenman, K., Alessio, A., Wang, L., "Ordinal classification framework for multiclass grading of pneumoconiosis," in *SPIE Medical Imaging 2025: Computer-Aided Diagnosis*, vol. 13407, 134072Q, Apr. 2025. doi:10.1117/12.3046353

TECHNICAL SKILLS

Languages: Python, C++, R, SQL
Frameworks/Tools: PyTorch, HuggingFace, smolagents , scikit-learn, Captum, UMAP, PCA Git, Docker, Jupyter, Ollama
HPCC: CUDA, SLURM, Singularity, Linux HPC
Core CS: Deep Learning, Optimization, Computer Vision, Data Science, Algorithm Design

LANGUAGES, ACTIVITIES & AWARDS

Languages: Polish (Native), English (Proficient)
REHS – Excellent Teamwork Award
EGRID Silver Scholarship
Co-creator of Polish Club