Dominic Kennedy

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EDUCATION

University of Utah — 2024 – *present*
PhD, Computer Science — *Salt Lake City, UT*

University of Tennessee — 2019 – 2023
B.S., Computer Science — *Knoxville, TN*

PUBLICATIONS

Nice to Meet You: Synthesizing Practical MLIR Abstract Transformers — POPL 2026
Xuanyu Peng, **Dominic Kennedy**, Yuyou Fan, Ben Greenman, John Regehr, Loris D'Antoni

Hyperparameter optimization and feature inclusion in graph neural networks for spiking implementation — ICMLA 2023
Guojing Cong, Shruti Kulkarni, Seung–Hwan Lim, Prasanna Date, Shay Snyder, Maryam Parsa, **Dominic Kennedy**, and Catherine Schuman

Augmenting singularity to generate fine-grained workflows, record trails, and data provenance — e-Science 2022
Dominic Kennedy, Paula Olaya, Jay Lofstead, Rodrigo Vargas, and Michela Taufer

Building trust in earth science findings through data traceability and results explainability — IEEE TPDS 2023
Paula Olaya, **Dominic Kennedy**, Ricardo Llamas, Leobardo Valera, Rodrigo Vargas, Jay Lofstead, and Michela Taufer

EMPLOYMENT

ABS Consulting — May 2023 – July 2024
Software Developer — *Knoxville, TN*
- Created a custom ML model for matching blueprints to tables in report PDFs, based on statistical inference, and OCR
- Built custom ML model for classifying text relevancy based on NLP keyword metrics
- Developed workflow to extract hierarchical data from PDFs using multiple heuristics then storing in SQL

TENNLab — Jan. 2023 – May 2023
Undergraduate Researcher — *Knoxville, TN*
- Spearheaded new approach to visualize spiking networks, with a step-by-step debugger
- Rewrote CLI app to browser based app for more intuitive approach to programming spiking networks

Global Computing Lab — Aug 2021 – Nov, 2022
Undergraduate Researcher — *Knoxville, TN*
- Ran performance analysis for parallel scientific workflows on HPC; determining containerization overhead
- Created a system for reproducing computational scientific results by containerization and metadata collection
- Worked on the integration of HPC hierarchical schedulers into Kubernetes clusters

Cisco Systems — Summer 2021; Summer 2022
Security Research Engineer Summer — *Knoxville, TN*
- Tested for program correctness and located software defects using static analysis tools such as UBSan and ASan
- Found active vulnerabilities by analyzing production code using dynamic analysis tools such as Valgrind and GDB
- Wrote bug reports following a found vulnerability; provided remediation steps to product owners

PROJECTS

NiceToMeetYou
Synthesizing abstract transformers for LLVM

gobrr
In-Memory File System for Golang

TN Soccer Reports
Web app for reporting red cards in soccer matches

SKILLS

C++, Python, TypeScript, LLVM, MLIR, Git