

KALYAN BHETWAL

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EDUCATION

Master of Science, Computer Science (GPA: 4.0/4.0)

Expected: May 2023

Boise State University, Boise, ID, USA

(Relevant Courses: Advanced Topics in Compilation, Advanced Software Engineering, Parallel Computing, Operating Systems)

Bachelor of Engineering, Electronics and Communication Engineering

2012 – 2016

Tribhuvan University, Kathmandu, Nepal

(Relevant Courses: Computer Architecture, Embedded Systems, Microprocessors, Artificial Intelligence, Big Data Technology)

RELEVANT EXPERIENCE

Graduate Research Assistant

August 2021 – Present

Adapt Lab, Boise State University, Boise, ID

- Worked on hydroFrame project for optimizing workflows written in Python to run the hydrological simulation in the continent of the United States which improved speed by at least two times (collaboration project between Princeton University, Arizona State University, more)
- Developing Domain Specific Language (DSL) for Hydrologist with the objective of minimizing data processing time and resources needed for running continental-scale hydrologic simulation
- Collaborate in a team to modify and improve on projects like sparse tensor computations code synthesis using the sparse polyhedral framework in the CHILL I/E compiler group
- Implemented Static Single Assignment (SSA) form for Polyhedral data-flow graphs (PDFGs) in IEGenLib for memory optimization in Sparse Polyhedral Framework

Team Lead/ Senior Solution Engineer

May 2020 – July 2021

Solution Engineer

Jan 2019 – Apr 2020

Logpoint, Lalitpur, Nepal

- Trained and mentored new team members and prepared performance reviews
- Worked as the Project Lead for the Gartner Magic Quadrant demo which placed logpoint in the visionary quadrant
- Developed applications to solve problems at the core of security and trust issues

Associate Security Analytics Engineer

Jan 2017 – Dec 2018

Logpoint, Lalitpur, Nepal

- Developed applications for threat intelligence and threat hunting for automated threat detection
- Developed applications for assessing the health of Logpoint servers for fault tolerance
- Worked on User and Entity Behavior Analytics (UEBA) project, which helps in accelerated detection and response to threats reducing incident response time to half and analyst workload by 35-50%

PROJECTS

- **High-Performance DSL for Hydrologic data processing** (thesis): DSL that optimizes data processing time and resources for hydrologic simulations (Working on publishing the results) 2022
- **Memory Optimizations in the Sparse Polyhedral Model:** Optimize storage for the given computation expressed in the Sparse Polyhedral Framework (Working on publishing the results) 2022
- **Exploring Effects of downsizing Parameters in ELECTRA:** The project studied the effect of downsizing parameters in ELECTRA a Bert-based language model while trained with the AO-CHILIZE dataset 2022
- Systematic Literature Review of **Software Engineering Practices in General Software and Machine Learning Startups** 2022
- **FPGA implementation of Pong Game** [git]: The project implements Tetris's popular pong game in the Spartan-3A FPGA board using Hardware Description Language. (Tools: Verilog, Spartan-3A, FPGA) 2015
- **Indoor Navigation System** [git]: The project implements a navigation system for indoor environments using existing WLAN infrastructure and motion sensors applicable in the Localization and Navigation of humans and robots inside buildings, metro stations, and airports. (Tools and Technique: Python, Matlab, MySQL, Markov Chain Monte Carlo dead reckoning, Gaussian process regression, wKNN) 2016

PUBLICATIONS

- Popoola, Tobi, et al. “Code Synthesis for Sparse Tensor Format Conversion and Optimization”. To appear on CGO 2023

ACTIVITIES and ACHIEVEMENTS

- Volunteered in NeurIPS 2020, ICLR 2020, and ICML 2020
- Volunteered in POPL 2022 (Principle of Programming Languages) 2022
- Volunteered in PLDI 2022 (Programming Languages Design and Implementation) 2022
- Coordinator, IOE Free and open-source software (FOSS) Community 2014 – 2016
- Organized National Mathematical Olympiad 2015
- Volunteered in the 12th -15th National Technological Festival 2012 –2015
- President/Founding member of Competitive Programming Club 2022
 - Started peer mentoring program for students from traditionally underrepresented backgrounds
- Founding President of Nepalese Student Association at Boise State University 2021–Current
 - Won ASBSU-student government grant worth \$4000
 - Finalist in the “Event of the year” category in the Campus Award
- Event Coordinator for International Student Association 2021 – 2022
- Computer Science Laboratory at VHMavi (<http://vhmavi.edu.np/>): VHMavi is a secondary school in Nepal that provides free education to underprivileged/orphan children. I provided technical assistance in establishing a Computer laboratory. Also, I helped in educating the teachers and students. 2013

TECHNICAL SKILLS and CERTIFICATIONS

- **Programming Languages:** C, C++, Assembly Programming, Verilog, VHDL, Python, MATLAB,
- **Others:** MongoDB, Mathematica, Git, LaTeX, Regular Expressions, Deep learning, LLVM, MLIR, Pytorch
- ITIL Foundation Level Certification
- LFD420: Linux Kernel Internals and Development