Suraj P. **Kesavan**

San Francisco, CA

✉ jarus3001@gmail.com | 🏠 jarusified.github.io

Education

University of California, Davis   *Davis, USA*

Ph.D. in Computer Science   *2016-Current*

- Graduate Courses: Visualization, Machine Learning, Operating Systems, Artificial Intelligence
- Advised by Dr. Kwan-Liu Ma, Visualization & Interface Design Innovation Group **[VIDI]**
- Research Area: Information Visualization, Visual Analytics, High-Performance Computing, Network Science, and Machine Learning

National Institute of Technology, Tiruchirappalli   *Tiruchirappalli, India*

Bachelors in Instrumentation and Control Engineering   *May 2016*

- Undergraduate Courses : Computer Vision, Data Structures and Algorithms, Linear Control, Neural Networks, Sensors and Instrumentation

Experience

Graduate Research Assistant - VIDI labs   *Davis, USA*

UC Davis   *June 2017 - Current*

- Researching and identifying problem statements in information visualization, visual analytics, network science, and machine learning.
- Developed visual analytics solutions for analyzing event sequences, network and streaming data to preserve the scale and user's cognizance.
- Drafted 6 IEEE research articles and 3 DOE proposals to increase the visibility of the research and sought more than 500,000$ in funding.

Co-Founder & Full Stack Engineer   *Remote*

ING Lifestyle - Earn Cashback through an Active Lifestyle   *Summer 2021*

- Responsible for creating efficient design and developing UI/UX features for 10+ screens of the iOS application.
- Managed a team of 2 engineers to deliver an end-to-end full stack architecture with React Native, Node.js, Google Cloud Platform.
- Planned, tracked, and managed deliverables to drive the technical software design and successfully released the software. **[App Store]**

Computation Student Intern   *Livermore, USA*

Lawrence Livermore National Laboratory   *Summer 2018, 2019 & 2020*

- Researched and developed programming tools to handle petabytes of profile and trace data from large-scale supercomputers (Lassen, Pascal).
- Developed visual analytic tool, CallFlow, to study and analyze callgraphs (comprising of > 10000 nodes) for performance optimizations.
- Collaborated with HPC engineers and scientists to integrate CallFlow into LLNL's performance monitoring and analysis architecture. **[Github]**

Current Projects

Visual Analysis of Data Movement in Heterogeneous Computing Architectures - UC LabFee Research Program

- Received a 200,000$ award as a two-year academic scholarship (2021-23) to lead the project.
- Working on a performance monitoring interface to collect inter-device data movement (CPU-GPU) from CUDA, OpenCL kernels.
- Developing interactive visualizations to study the data movement from running large-scale DL models on different memory architectures.

Publications

Under Submission

- "Feasibility Analysis and Solution of Hardware-Assisted Detection against Update Attacks on Android", Han Wang et al.
- "A Block-based Visualization Approach to Uncover Hidden Patterns in Event Sequence Data", Suraj P. Kesavan et al.

IEEE Transactions on Visualization and Computer Graphics (TVCG) Journal

- "Scalable comparative visualization of ensembles of call graphs", Suraj P. Kesavan et al., 2021 **[Paper]**
- "Visualizing Hierarchical Performance Profiles of Parallel Codes using CALLFLOW", Huu Tan Nguyen et al., 2020 **[Paper]**

IEEE Pacific Visualization Symposium (PacificVis) Conference

- "A visual analytics framework for reviewing streaming performance data", Suraj P. Kesavan et al., 2020 **[Paper]**

IEEE Visualization in Data Science (VDS) Workshop

- "A visual analytics framework for analyzing parallel and distributed computing applications", Kelvin Li et al., 2019, **[Paper]**

Skills

Languages: Python, C++, Javascript (>=ES6), Node.js, HTML, CSS, Bash.

Frameworks: Numpy, Pandas, Scikit-learn, Vue, React, React-native, Flask, SQL, MongoDB, CUDA, MPI, GCP, AWS.

Tools: Git, SLURM, VSCode, Jupyter Notebook, CMake, Webpack.