Dilawar Singh

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Capable system engineer and fullstack developer with significant tech lead and CTO experience. I can easily integrate into teams, build teams, and mentor juniors. Slightly workaholic. FOSS Contributor.

Skills

Languages: Rust, C++, Python, PHP, Javascript/Typescript, SQL, LaTeX. *(familiar)* Haskell, VHDL/Verilog/SystemC.

Databases: PostGreSQL, MariaDB, Sqlite3, DuckDB, VictorialMetrics. Phinx, Alembic, SQLModel, SQLX/Diesel.

Libraries & Frameworks: Boost, PyBind11, Win32 API, GDAL, OpenCV, numpy/scipy stack, leptos.

Web: Vue3, React, HTMX; Codeigniter, Laravel, Axum, Actix, FastAPI;

Modeling and Simulation: PlantUML, TikZ; KiCAD, OpenSCAD; ModelSim, NgSpice; MOOSE, Neuron; Smoldyn.

DevOps: Git, Docker, CMake, PyInfra/ansible, bash/lua; Jenkins, Gitlab Runners; Grafana; eBPF based sensors; Packaging (nsis, deb, rpm), Open Build Service;

Misc: Parser, Network Flows, Graphs, Linear Algebra & Combinatorics, Computer Vision, Probabilistic DSA, BDD/Model Checking, DSP, Routing.

Experience

Senior Engineer, *Dognosis, Bengaluru* *Jan 2025 – current*

- Added SLAM to existing canine kit that generates 3D model of arena to enable certain use-cases for demo-day
- Led a small capable team to build data APIs and portals from scratch to collect medical data at remote locations
- Setup hiring pipelines, interviewed and hired 5 engineers to increase team sizes to 11 in 3 months

CoFounder & CTO, *Subconscious Compute, Bengaluru* *Dec 2019 – Dec 2024*

- Cofounded a endpoint cybersecurity startup after my PhD and took it through pre-series A
- Hired and led a team of 15 system engineers to build our flagship endpoint security product Shepherd
- Wrote kernel minifilter, core algorithms for cross-platform deployment (Win32, OSX, *nix/Android)

Research Fellow & GSoC Mentor *2016 – 2018*

- Added various numerical solvers in MOOSE simulator that allowed switching solvers
- Mentored GSoC participants for 3 years on GPU/CUDA effort

Firmware Engineer, *Kritical Solutions, Noida* *Jul 2009 – Jun 2010*

- Implemented Kalman filter based image stabilizer to remove vibration artifacts from recorded videos

Projects

- Wrote NCBS Hippo used by almost everyone on campus to automatically & "optimally" schedule annual thesis seminars. Hippo also managed room booking, institute public calendar. I also wrote accompanying Android App (Google Play). Hippo saved thousands of trips and emails to academic office.
- Imagine training a mouse without any automation? I built a Behaviour Box that automated training session making multiple sessions possible in a day!
- I wrote and maintain a few rust crates: stream processing, WMI interface, cli tools etc
- I wrote and maintain a few python packages: a popular utility to extract data from images of plots, Notion/Gitlab bridge for internal use, a UI for oscilloscope and a simple plagiarism detector CodeSniffer as teaching assistant
- Wrote python bindings and maintain wheels for Smoldyn simulator and MOOSE simulator
- To regain lost eye-sight, I fabricated a micro-electrode arrays on ITO coated glass to stimulate retinal cell.

Education

PhD, *Computational Neuroscience, NCBS Bangalore (TIFR Mumbai), India* *2019*

PhD, *Digial Systems, IIT Bombay,* ***withdrawn*** *2013*

MTech, *Electrical Engineering (VLSI), IIT Bombay* *2009*

BTech, *Electrical Engineering, Dr. MGR ERI, Chennai* *2007*