Curriculum Vitae

Venkata Saikiranpatnaik Balivada

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Education

- **Indian Institute of Technology** — Delhi, India
  B.Tech in Computer Science and Engineering; CGPA: 9.371/10 — *Jul. 2014 – May. 2018*

Professional Experience

- **Marlin Protocol** — Bangalore, India
  Blockchain Developer — *Jun 2021 - Present*
  - **P2P network simulator**: Developed a peer-to-peer network simulator to compare the latency and bandwidth performance of an in-house protocol with that of the floodsub and gossip protocols.
  - **MEV extraction on polygon**: Ported mev-geth to bor as a part of a project to facilitate flashbots technology on the polygon chain. Developed a monitoring service to flag potential polygon validator misbehaviour.
- **Tower Research Capital** — Gurgaon, India
  Trading Platform Software Developer — *Jul 2018 - Jun 2021*
  - **Trade reply path optimizations**: Identified and implemented several optimizations such as improving division performance, enhancing map inserts, and eliding unnecessary virtual calls.
  - **Shared Memory Multi-reader support for sniffed links**: Added support to publish sniffed network data over shared memory. This allows multiple clients to consume the inbound network traffic without the overhead of reading the same data redundantly over the PCIe.
  - **Client Stack Python offering**: Initiated a project that offers our client-side C++ library in Python. Overcame various challenges relating to object ownership and pythonization of the C++ code.
  - **Metadata framework**: Designed and developed an application layer protocol and framework to produce/consume essential metadata. Trading clients require this metadata to accurately interpret the inbound market data traffic.

Academic Projects

- **Optimizing the performance of memory-intensive applications**: Designed and developed a proof of concept for a custom memory allocator that benefits from the efficient cache usage of 32-bit wide pointers. Unlike the x32 ABI, the applications are not capped by the 4GB virtual memory limit. This is achieved with a minor runtime overhead.
- **Tak Bot**: Used adversarial algorithms to develop an AI bot that plays Tak. Like chess, the game is sequential, deterministic and played by two. Ranked 4th in class.
- **Preemptive scheduling of coroutines**: Added support for shell, coroutines and preemptive scheduling of coroutines in an in-house operating system kernel.
- **Peer-to-Peer Multiplayer Game**: Designed and developed a Peer-to-Peer networked multiplayer Ping Pong game. The game houses an in-built fault tolerance allowing for player disconnections.

Scholastic Achievements

- Received semester merit awards on multiple occasions for being in the top 7% of my undergraduate class. Ranked top 5 in the department.
- Secured a top 100 rank in the JEE Advanced examination. More than a million candidates attempt the JEE set of examinations every year.
- Awarded certificate of merit for scoring in the top 1% of the National Standard Examination in Physics.

Programming Skills

- **Languages**: C++, Python, Go, Rust, CMake **Technologies**: Mellanox ibverbs, Protocol Buffers, Pybind11

Extra Curricular Activities

- **Cricket**: Played a crucial team role in winning the Inter-Hostel cricket tournament held during the academic year 2015-2016.
- **Cloth Collection Drive**: Collected old or unused clothes for poor children. The event was organized by the National Social Service.
- **Cyclone Relief Fund**: Raised financial resources towards Cyclone Hudhud relief. In 2014, the cyclone severely affected the south east coast of India.