VINEET KUMAR

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917 Avenue de Melrose, Montreal, QC, Canada - H4A 2R3

- **6+ years of relevant experience** in software design and development. | **M.Sc Computer Science**, McGill University.
- Programming languages - *Proficient:* Python, C++, Java | *Prior experience:* X10, MATLAB.

WORK EXPERIENCE

INRO December 2014 - present
Senior developer *Montreal, QC, Canada*

- Built a new matrix calculator tool by writing a new parser and evaluator for Emme's matrix expression language.(*bit.ly/1N5geA8*)
  - Achieved **1.5x** to **30x** speedup depending on expression details and hardware resources.
  - Built a memory management system to efficiently handle computations on matrices over 1GB in size. (Python and C++)
- Data analytics for GTFS and travel smart-card data: Developed techniques and tools to visually analyze public transport smart card data.These tools are used by clients to analyze and query things like loads, delays, and stop activities.
- Maintain and develop new Python API modules for Emme.
  - Design JSON input specifications that are used to interface Emme's GUI frontend with the API.
  - Process inputs to the API and generate code (Emme macros) used as input for Emme's Fortran backend.
  - Parse output logs generated by the backend and generate JSON reports used by the GUI.
- Work on optimizing and extending CityPhi's core data backend. Also Designed and Developed CityPhi API for importing geo and transport data from various data formats like Shapefiles, OSM and GTFS.

ISENCORE Technologies September 2013 - December 2014
CTO and co-founder *Montreal, QC, Canada*

- Implemented the 3D object discretization module for **Quirdity**, ISENCORE's 3D simulation engine. (C++)
- Won **first prize** in the **Mcgill Dobson cup** 2014 startup competition.
- Delivered the **winning pitch** to get selected as **one of the 20 startups worldwide** to present at SLUSH 2014.

McGill University January 2012 - April 2014
Research and Teaching *Montreal, QC, Canada*

- **Research Assistant, Sable Lab** - My research included program analysis and static compilation of dynamic languages.
  - Designed and developed MiX10 : a MATLAB to X10 compiler for high-performance, under **Prof. Laurie Hendren's** supervision and with direct inputs from the X10 **design team at the IBM T.J. Watson research center**. (Java)(*bit.ly/1sZ8aqJ*)
  - Achieved **7 times (mean) faster** performance compared to the standard MATLAB implementation.
  - Discovered **2 bugs** and a **severe performance bottleneck** in the X10 compiler.
- **Teaching Assistant** - Program Analysis and Transformations, Compiler Design, and Introduction to Computer Systems.

Infosys Technologies Ltd. September 2008 - August 2011
Systems Engineer *Pune, India*

- **Led** a team of 4 for **deployment performance management** for AT&T's online and mobility frontend and backend applications.
  - My team's job was to design and develop performance test scripts, analyze results, and troubleshoot performance issues.
  - Worked on 8 projects and they all exceeded performance SLA under peak loads.

Sun Microsystems January 2007 - May 2008
Intern - Student Tech Lead, APAC region/Campus Ambassador *Bangalore, India*

- Promoted from being one of the **only 27 Campus Ambassador across India** to one of the **only 5 Tech Leads worldwide**.
  - **Taught** a course on OpenSolaris at the university. Conducted webinars and developed tutorials for ambassadors worldwide.

PUBLICATIONS

- Vineet Kumar and Laurie Hendren. MiX10 : Compiling MATLAB to X10 for High Performance. In Proceedings of the 2014 ACM International Conference on **Object Oriented Programming Systems Languages & Applications (OOPSLA '14)**.(*bit.ly/1sft0PU*)
- Vineet Kumar and Laurie Hendren. First steps to compiling MATLAB to X10 . In Proceedings of the 2013 ACM SIGPLAN X10 Workshop, **X10 '13** co-located with **PLDI 2013**.(*bit.ly/18owBUI*)

EDUCATION

McGill University April 2014
M.Sc. in Computer Science (CGPA: 3.56/4.00) *Montreal, QC, Canada*

- Master's thesis reviewed as **"Excellent"** by the external reviewer.

SASTRA University June 2008
B.Tech. in Computer Science & Engineering (CGPA: 8.93/10.00) *Thanjavur, India*

- Won the Dean's list scholarship for being among the **top 10%** students in the University.

SELECTED OTHER PROJECTS

- Analysis to identify complex numerical values for MATLAB programs.(*bit.ly/15SYKmC*)
  - Developed a language to express information propagation through library function calls.(*bit.ly/1ezq93q*)
- FreeMeLegal: An Open source license recommendation engine.(*bit.ly/1m030GV*)