

Vivek Nair

CONTACT INFORMATION

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EDUCATION

North Carolina State University
Ph.D. candidate in Computer Science
Advisor: Dr. Tim Menzies

Raleigh, NC
May 2013 - May 2018 (Expected)

National Institute of Technology, Durgapur
M.Tech in Information Technology

Durgapur, India
2011

West Bengal University of Technology
B.Tech in Computer Science

Kolkata, West Bengal
2009

PREPRINTS

- **Vivek Nair**, Zhe Yu, Tim Menzies. *FLASH: A Faster Optimizer for SBSE Tasks*. 2017
- Jianfeng Chen, **Vivek Nair**, Rahul Krishna, Tim Menzies. *Is Sampling better than Evolution for Search-based Software Engineering?*. 2017
- Wei Fu, **Vivek Nair**, Tim Menzies. *Why is Differential Evolution Better than Grid Search for Tuning Defect Predictors?*. 2017

PUBLICATIONS

- Jianfeng Chen, **Vivek Nair**, Tim Menzies. *Beyond Evolutionary Algorithms for Search-based Software Engineering* in IST 2017.
- **Vivek Nair**, Tim Menzies, Norbert Seigmund, Sven Apel. *Using Bad Learners to find Good Configurations* in FSE 2017.
- **Vivek Nair**, Tim Menzies, Norbert Seigmund, Sven Apel. *Faster Discovery of Faster System Configurations with Spectral Learning* in ASE Journal, 2017.
- **Vivek Nair**, Tim Menzies, Jianfeng Chen. *“An (Accidental) Exploration of Alternatives to Evolutionary Algorithms for SBSE”* in SSBSE, 2016.
- Subhrabrata Choudhury, **Vivek Nair**, Jaydeep Howlader, Bikash Choudhury and A.K. Mal. *“An integrated routing and offset-time adaptation scheme for OBS network”* in ICDCN, 2015.
- Subhrabrata Choudhury, **Vivek Nair**, A.K. Mall. *‘A Routing Scheme for OBS Networks’*, in Journal of Optical Communications and Networking(JOCN), 2013.
- Subhrabrata Choudhury, **Vivek Nair**, Bikash Choudhury, Pallab Biswas, A.K. Mall. *‘A family of flexible offset-time based wavelength schedulers for OBS edge-nodes’*, in ICP, 2012.
- Animesh Dutta, **Vivek Nair**, Ranjan Dasgupta, Swapan Bhattacharya. *“Ontology Based Semi-formal Design of Teleteaching System”*, in TENCON, 2010.

PROFESSIONAL EXPERIENCE

Research Assistant

North Carolina State University (NCSU)

Real-world Artificial Intelligence for Software Engineering (RAISE)

January, 2015 - present

- **SWAY: Sampling WAY**

Exploration of various alternatives to expensive evolutionary searches by intelligent sampling and population exploration.

- **Faster Discovery of Configuration Options of Software System**

Performance optimization using machine learning techniques to discover system configurations to enhance performance of software system.

Intern

HIS Labs

LexisNexis - Risk Solutions

June, 2015 - Present

- **FUSE Plugin:** Implementation of FUSE plugin, which can be used to mount HPCC cluster on to local machine. Also included in the plugin is caching mechanism which does not require downloading large files on to local machine.
Languages used: ECL, Python, Apache Spark, Apache Livy
- **Regression Suite:** Implementation of regression suite which includes both validity as well as scalability. The rig compares the performance scores of ecl-ml and scikit-learn.
Languages used: ECL, Python
- **ML-Plugins:** Implementation of Machine learning HIPIE plugins. Plugins make the library more accessible. The plugins developed are now a part of the Data Science Portal, an internal tool used across the organization.
Languages used: DUD, ECL
- **Hyper-Parameter Tuner:** Implemented tuners, which would use algorithms like grid-search, differential evolution etc. to tune the hyperparameters.
Language used: ECL
- **Optimizing Random Forests:** Implementation and testing of Random Forest in the Enterprise Control Language (ECL) for use in the High Performance Computing Cluster (HPCC).
Languages used: ECL, Python

Research Assistant

Group on Autonomy, Resilience, Collaboration, and Energy (DANCE)

North Carolina State University (NCSU)

May, 2013 - December, 2013

- **Detecting Contention in Data Center Environment**

Interference in a data center leads to performance variability, which causes losses to data center operators. Dynamically detecting and mitigating interference would save money for the operators. Use of hardware performance counters have proved useful in our initial experiments.
Languages used: Python, Shell script, Hadoop, Web service (RUBiS and httpperf)

Software Engineer

File System & Memory Team

Samsung Software Engineering Labs, India

June 2011 - May 2013

- Worked on various projects based on NOR Flash for Ultra Low Cost cell phones.
- Developed tools to write data into One Time Programmable area of the NOR Flash.
- Worked on various filesystems like TargetFFS-NAND, Target-NOR, TargetZFS and Target FAT.
Languages used: C

TECHNICAL SKILLS

- Language: Python (3+ years), C (6+ years), Java (2+ years), ECL (2 year)
- OS: Linux, Windows
- Version Control: Perforce, git

HONORS AND AWARDS

- Awarded the Employee of the Month in the month of January, 2012 at Samsung Engineering Lab
- Awarded Scholarship by the HRD Ministry for pursuing M.Tech