Vivek Nair

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Education

North Carolina State University   Raleigh, NC
Ph.D. candidate in Computer Science   May 2013 - May 2018 (Expected)
Advisor: Dr. Tim Menzies

National Institute of Technology, Durgapur   Durgapur, India
M.Tech in Information Technology   *2011*

West Bengal University of Technology   Kolkata, West Bengal
B.Tech in Computer Science   *2009*

In Preparation

- Jianfeng Chen, **Vivek Nair**, Rahul Krishna, Tim Menzies. *"Sampling" as a Baseline Optimizer for Search-based Software Engineering.* (2nd round review at IEEE TSE). → `http://tiny.cc/vivek_2016b`

- Wei Fu, **Vivek Nair**, Tim Menzies. *Why is Differential Evolution Better than Grid Search for Tuning Defect Predictors?.* 2017 → `http://tiny.cc/vivek_2016c`

- **Vivek Nair**, Zhe Yu, Tim Menzies, Norbert Seigmund, Sven Apel. *FLASH: A Faster Optimizer for SBSE Tasks.* 2017 → `http://tiny.cc/vivek_2017d`

Publications

- Jianfeng Chen, **Vivek Nair**, Tim Menzies. *Beyond Evolutionary Algorithms for Search-based Software Engineering* in IST 2017. → `http://tiny.cc/vivek_2017c`

- **Vivek Nair**, Tim Menzies, Norbert Seigmund, Sven Apel. *Using Bad Learners to find Good Configurations* in FSE 2017. → `http://tiny.cc/vivek_2017b`

- **Vivek Nair**, Tim Menzies, Norbert Seigmund, Sven Apel. *Faster Discovery of Faster System Configurations with Spectral Learning* in ASE Journal, 2017. → `http://tiny.cc/vivek_2017a`

- **Vivek Nair**, Tim Menzies, Jianfeng Chen. *"An (Accidental) Exploration of Alternatives to Evolutionary Algorithms for SBSE"* in SSBSE,2016. → `http://tiny.cc/vivek_2016a`

- 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. → `http://tiny.cc/vivek_2015a`

- Subhrabrata Choudhury, **Vivek Nair**, A.K. Mall. *'A Routing Scheme for OBS Networks"*, in Journal of Optical Communications and Networking(JOCN), 2013.→ `http://tiny.cc/vivek_2013a`

Professional Experience

Research Assistant   North Carolina State University (NCSU)
Real-world Artifical Intelligence for Software Engineering (RAISE)   *January,2015 - present*

- **Faster Discovery of Configuration Options of Software System**
  Performance optimization using machine learning techniques to discover system configurations to enhance performance of software system.

- **SWAY: Sampling WAY**
  Exploration of various alternatives to expensive evolutionary searches by intelligent sampling and population explotion.

Intern   LexisNexis - Risk Solutions
HIS Labs   *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 scaliability. 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   North Carolina State University (NCSU)
Group on Autonomy, ResilieNce, Collaboration, and Energy (DANCE)   *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   Samsung Software Engineering Labs, India
File System & Memory Team   *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 for innovative use of HPCC Systems, 2017
- Awarded the 2nd prize in HPCC System Poster Competition, 2016.
- 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