

# Vivek Nair

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## EDUCATION

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- North Carolina State University (NCSU)**, Raleigh, NC, USA May 2013 - Dec 2018 (expected)  
Ph.D. Computer Science | Supervisor: Dr. Tim Menzies, Full Professor
- National Institute of Technology**, Durgapur, India Aug 2009 - May 2011  
M.Tech. Information Technology | Supervisor: Dr. Subhrabrata Choudhury, Associate Professor
- West Bengal University of Technology**, Kolkata, India Aug 2005 - May 2009  
B.Tech. Computer Science

## SKILLS AND INTERESTS

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- Experience in Machine Learning (ML), Software Analytics;
- Proficient in *Python*, familiar with *Java*, *C*, and *ECL*; data analysis tools (Scikit-learn, SciPy, Pandas, jMetal, automl);
- Interested in backend/infrastructure development, ML, and research positions.

## PROFESSIONAL EXPERIENCES

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**Research Intern | Microsoft, Redmond, WA** Summer 2018  
*Prediction Models for CloudTest Resource Allocation*

- Currently working on Cloud Test, an internal tool used for testing software projects across Microsoft. Goals are: 1) to understand patterns in test jobs and 2) use the patterns to build prediction models that can allocate resources and reduce a job's makespan.

**Software Engineering Intern | LexisNexis, Atlanta, GA** Summer 2015, 2016  
*Enhancing ML Capabilities of HPCC*

- Developed a FUSE plugin for HPCC (a big data cluster) to connect with Apache Spark. This plugin decreases data query time (up to 20%) as well as the overhead necessary to download the files to local machines;
- Implemented an automated testing suite for the ML library and ensured that the testing time was < 24 hours;
- Developed several ML plugins for the Data Science Portal, an internal tool that aids in-house business analysts.

**Software Engineer | Samsung SEL, Noida, India** Aug 2011 - Apr 2013  
*Developing file-system and memory solutions for low cost cellular phones*

- Worked on numerous projects based on NOR Flash for Ultra Low-Cost cell phones;
- Reduced the boot time of the E1200 from 30 seconds to < 10 seconds;
- Developed tools that write data to the One Time Programmable Area of the NOR Flash;
- Worked with various file systems like TargetFFS-NAND, Target-NOR, TargetZFS and Target FAT.

## SELECTED PROJECTS

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**Faster Discovery of Configuration Options of Software Systems** May 2016 - Jan 2018

- Used optimization and ML techniques to discover (near) optimal system configurations;
- Ran benchmarks to collect data over nine months and found performance metrics corresponding to configurations of the system under analysis;
- Spent one month analyzing data to build a model used for performance optimization.

**Sampling to discover optimal product configurations** Jan 2015 - May 2016

- Explored various alternatives to expensive evolutionary searches by intelligent sampling;
- Approximated Principal Component Analysis to quickly prune the space of products.

## SELECTED PUBLICATIONS

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- Chin-Jung Hsu, **Vivek Nair**, Vincent W. Freeh, Tim Menzies. *Micky: A Cheaper Alternative for Selecting Cloud Instances*. IEEE CLOUD 2018;
- Chin-Jung Hsu, **Vivek Nair**, Vincent W. Freeh, Tim Menzies. *Low-Level Augmented Bayesian Optimization for Finding the Best Cloud VM*. ICDCS 2018;
- **Vivek Nair**, Amritanshu Agrawal, Jianfeng Chen, Wei Fu, George Mathew, Tim Menzies, Leandro Minku, Markus Wagner, and Zhe Yu. *Data-Driven Search-based Software Engineering*. MSR 2018;
- Jianfeng Chen, **Vivek Nair**, Rahul Krishna, Tim Menzies. "Sampling" as a Baseline Optimizer for Search-based Software Engineering. IEEE TSE 2018;
- **Vivek Nair**, Zhe Yu, Tim Menzies, Norbert Seigmund, Sven Apel. *Finding Faster Configurations using FLASH*. 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.