

Nicholas A. 'Nick' Kraft

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SUMMARY OF QUALIFICATIONS

TECHNICAL

- World-class expertise using, teaching, and creating software engineering processes, methods, and tools
- Expert level experience programming in C# and Python
- Strong experience programming in Java, C, and C++
- Strong experience applying machine learning techniques to batch and streaming data
- Experience developing applications in varied domains such as source code search (C#, Lucene.Net), full-text work item search (C#, Solr, TFS, SQL), telemetry analytics (Python, SciPy, Pandas, Matplotlib), IoT building automation and control (Java, OSGi, Modbus, REST), 3D printer control (C#, WPF, MVVM), mixed reality for robot programming (C#, Unity), predictive modeling (Python, Scikit-learn)

MANAGERIAL

- 11+ years building and mentoring teams to solve complex research and development problems
 - Managing projects with agile processes to deliver outcomes on time and within budget
 - Mentoring peers and supervisees on software engineering practices and career development
- Extensive experience communicating directly with senior management via presentations and reports
- Extensive experience leading projects and initiatives with global team members and stakeholders
- Experience summarizing technical results and communicating their business value to diverse stakeholders
- Experience supporting non-software/non-technical groups including marketing and government relations
- Experience recruiting, hiring, guiding, coaching, mentoring, and evaluating junior & senior team members

EXPERIENCE

ABB CORPORATE RESEARCH, RALEIGH, NC, USA

June 2014 – Present

- Lead Principal Scientist (Software Engineering Researcher), June 2017 – Present
 - Conceive, design, execute, and evaluate research projects that target the improvement of existing software products or the creation of new software products (across all product groups in ABB)
 - Lead the architecting, design, and full stack C#/Python development of software prototypes for delivery to product R&D teams both as an individual contributor and as a team leader
 - Partner with engineers from diverse disciplines to deliver domain-specific software solutions in areas such as building control systems and materials & manufacturing
 - Applied data science methods (e.g., feature selection, dimensionality reduction, & k-means clustering) to telemetry data to deliver insights that guided the product team in planning new product features
 - Applied machine learning methods (e.g., feature engineering, kernel methods, & ensemble methods) to biometric and computer interaction data (and associated ground-truth data) to build predictive models
- Principal Scientist (Software Engineering Researcher), June 2014 – June 2017
 - Developed and delivered software process and productivity improvement tools to thousands of globally distributed software developers to improve their efficiency and efficacy in daily tasks
 - Implemented features of an open source Visual Studio Extension that uses Lucene.Net to provide developers with accurate and scalable source code search in the IDE, including support for multiple programming languages, term/phrase suggestions, and structured queries
 - Architected, designed, developed, and delivered a desktop application that uses Solr and TFS service hooks to provide developers and customer support personnel with accurate and scalable work item search, including support for the detection of duplicate bugs or related work items
 - Secured government funding from the DARPA Mining and Understanding Software Enclaves (MUSE) program to support software repository mining research aligned with business priorities

- University Relations Program Manager, May 2018 – Present
 - Manage and serve as the primary internal and external point of contact for a portfolio of consortia memberships and individual fellowships
 - Lead the internship program by recruiting, coordinating hiring, and monitoring performance of about 20 interns across 8 research areas each year
 - (Since 2015) Direct the professional development program to orient the interns and to provide them with the knowledge and skills required to make meaningful project contributions
 - Serve as the global point of contact for research-oriented university engagements with US institutions
 - Serve on a globally distributed team of university and government relations program managers to develop policy and procedures for pursuing, participating, and tracking external relationships
 - Communicate program status, updates, and opportunities to local and global management

NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NC, USA

September 2018 – Present

- Part-Time Teaching Assistant Professor of Computer Science (0.225 FTE)
 - Taught software engineering principles and practices to over 160 Master's students in two semesters
 - Emphasized exposure to modern software engineering principles, practices, and tools including: agile processes such as Scrum and XP, issue and project tracking with GitHub, SOLID principles, architectural and design patterns, unit testing with JUnit, continuous integration with Jenkins, configuration management with Vagrant and Ansible, automated refactoring with an IDE
 - Contrasted modern and traditional approaches, and highlighted appropriate contexts for each

THE UNIVERSITY OF ALABAMA, TUSCALOOSA, AL, USA

July 2007 – May 2014

- Associate Professor of Computer Science (with tenure), August 2013 – May 2014
Assistant Professor of Computer Science, July 2007 – August 2013
 - Taught software engineering principles and practices to hundreds of students at all levels
 - Secured nearly \$2M in government funding to pursue fundamental research in software engineering
 - Published refereed research publications in leading software engineering journals and conferences
 - Presented at international conferences and gave invited talks at Google, NetApp, Duke, and others
 - Mentored undergraduate and graduate students via academic advising and research supervision

EDUCATION

Ph.D., Computer Science, Clemson University, Clemson, South Carolina, USA

May 2007

B.A., Mathematics, Indiana University Southeast, New Albany, Indiana, USA

May 2002

RESEARCH & UNIVERSITY PARTNERSHIPS

- Internationally recognized expert in software engineering research with emphases on source code search, source code analysis via machine learning, and mining software repositories for knowledge recovery and process measurement & improvement
- Leader in the software maintenance and evolution research community, including roles organizing and steering the key (IEEE-sponsored) international conference in the area
- Expert in the design and execution of quantitative and qualitative research studies, including software repository mining studies and human/developer studies
- Over 70 peer reviewed research publications, primarily on software engineering topics
 - Over 30 peer reviewed publications on software repository mining, including 15 on source code search
 - Active collaborations with researchers at Carnegie Mellon, NC State, UBC, Delaware, VCU, and others

CURRICULUM VITAE

https://nkraft.github.io/nkraft_cv.pdf