Chandra Sekhar Maddila

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EXPERIENCE (~11.5 YEARS)

SEPTEMBER 2013 – PRESENT

PRINCIPAL RESEARCH ENGINEER, MICROSOFT RESEARCH, REDMOND, USA

I work for applied sciences group at Microsoft Research. My primary interest areas are software engineering, dev tools, and developer productivity. I work on applications of machine learning (ML) and information retrieval (IR) methods to solve software engineering problems, at scale. I lead projects and build large-scale, distributed data platforms and services that enable various applications of ML and IR for solving software engineering problems.
I also work on understanding developer productivity, empirical software engineering, and understanding the impact of smart recommenders on developer productivity and software development processes.

JULY 2012 – AUGUST 2013

SOFTWARE ENGINEER, CA TECHNOLOGIES, HYDERABAD, INDIA

Part of a research group that built various automation / orchestration products and services. These services are widely used by the customers to manage their IT infrastructure and DevOps efficiently.

MAY 2010 – JUNE 2012

RESEARCH ENGINEER, CONVERGYS, HYDERABAD, INDIA

Part of 'Forward R&D' team. Worked on next gen billing and rating products / services used by major telecom companies and ISPs across the world.

EDUCATION

2015 – 2017

MASTER OF TECHNOLOGY (M. TECH), BITS-PILANI, INDIA

Software Systems, Data Analytics. CGPA: 8.35.

2006 – 2010

BACHELOR OF TECHNOLOGY (B. TECH), JNTU-KAKINADA, INDIA

Computer science and Engineering. Percentage: 74.8.

SELECTED PROJECTS

Some of the research projects I led / worked on:

- Project Sankie (Podcast)
  Cofounded Project Sankie. Sankie is large-scale AIOps data platform, which provides the necessary infrastructure to ingest data from software repositories and services, train machine learning models on the data, and eventually perform decorations or provide information to engineers to help increase the velocity

and throughput of changes, bug fixes etc.
Sankie platform is widely deployed at Microsoft. Till now, Sankie helped *reducing the completion time of pull requests by ~ 40% (P 99), prevented ~3K bugs from slipping into the production systems*. Because of the extensible nature, Sankie platform enabled other developers in the company to develop smart, ML-based recommenders, which created more impact and delivered larger economic value to the business.

- Nudge (VentureBeat)
  Invented Nudge, which is a large-scale, machine learning-based cloud service. Nudge helps in accelerating pull request completion time by reminding the author or the reviewer(s) to engage with their overdue pull requests.
  Nudge helped in increasing the velocity of change progression by ~60%. Nudge is deployed widely in Microsoft with a mandate to enable it by default in every newly created source code repository in the company.
- MEC (Time magazine)
  Part of a team that developed a research project named massively empowered classrooms (MEC). MEC is an experimental project designed to explore how online educational content and techniques in blended learning can be used to make online learning productive.
  Sangam, which is an instance of MEC, has helped train *110,000+ municipal functionaries across 4,000+* cities in India on best sanitation practices. The Learning Passport, which is another incarnation of MEC, allows educators to upload local curricula. First deployed in Timor-Leste in 2020, the Learning Passport now has close to *1.6 million users in 13 countries*

PUBLICATIONS AND PATENTS

1. *Chandra Maddila,* Chetan Bansal, Nachiappan Nagappan: *Predicting pull request completion time: a case study on large scale cloud services. ESEC/SIGSOFT FSE 2019*
2. Ranjita Bhagwan, Rahul Kumar, *Chandra Shekhar Maddila*, Adithya Abraham Philip*: Orca: Differential Bug Localization in Large-Scale Services. OSDI 2018. **Jay Lepreau best paper award***
   **Author names are listed in the order of last names.*
3. *Chandra Maddila*, Sai Surya Upadrasta, Chetan Bansal, Nachiappan Nagappan, Georgios Gousios, Arie van Deursen: *Nudge: Accelerating Overdue Pull Requests Towards Completion*. TOSEM.
4. *Chandra Maddila,* Nachiappan Nagappan, Christian Bird, Georgios Gousios, Arie van Deursen: ConE: A Concurrent Edit Detection Tool for Large Scale Software Development. TOSEM.
5. Nicole Forsgren, Margaret Anne Storey, *Chandra Maddila*, Thomas Zimmermann, Brian Houck, Jenna Butler:
   The SPACE of Developer Productivity: There's more to it than you think. Volume 19, January-February 2021, Association for Computing Machinery (ACM). ACM Queue. This paper is one of the top downloaded ACM papers with 161K downloads in just ten months.
6. Rahul Kumar, Chetan Bansal, *Chandra Maddila*, Nitin Sharma, Shawn Martelock, Ravi Bhargava*: Building sankie: an AI platform for DevOps. BotSE@ICSE 2019*
7. Adithya Abraham Philip, Ranjita Bhagwan, Rahul Kumar, *Chandra Maddila*, Nachiappan Nagappan*: FastLane: test minimization for rapidly deployed large-scale online services. ICSE 2019*
8. Sumit *Asthana,* Rahul Kumar, Ranjita Bhagwan, Christian Bird, Chetan Bansal, *Chandra Maddila*, Sonu Mehta, B. Ashok*: WhoDo: automating reviewer suggestions at scale. ESEC/SIGSOFT FSE 2019*
9. Denae Ford Margaret-Anne Storey, Tom Zimmermann, Christian Bird, Sonia Jaffe, *Chandra Maddila*, Jenna Butler, Brian Houck, Nachi Nagappan: *A Tale of Two Cities: Software Developers Working from Home During the COVID-19 Pandemic*. TOSEM.
10. Ranjita Bhagwan, Rahul Kumar, *Chandra Sekhar Maddila*, Adithya Abraham Philip*: Orca: Differential Bug Localization in Large-Scale Services. USENIX Annual Technical Conference 2019*

11. Shruti Rijhwani, Royal Sequiera, Monojit Choudhury, Kalika Bali*, Chandra Sekhar Maddila: Estimating Code-Switching on Twitter with a Novel Generalized Word-Level Language Detection Technique. ACL 2017*
12. Nikitha Rao, Chetan Bansal, Subhabrata Mukherjee, *Chandra Maddila*: *Product Insights: Analyzing Product Intents in Web Search***.** CIKM 2020
13. Chetan Bansal, Pantazis Deligiannis, *Chandra Maddila*, Nikitha Rao: *Studying Ransomware Attacks Using Web Search Logs*. SIGIR 2020
14. Chandra Maddila, Apoorva Agrawal, Thomas Zimmermann, Nicole Forsgren, Kim Herzig, Arie van Deursen: *Nalanda: A Socio-Technical Graph for Building Software Analytics Tools at Enterprise Scale*. arxiv.
15. Detecting Misconfiguration and/or Bug (s) in Large Service (s) Using Correlated Change Analysis, USPTO App 16515135

AWARDS, INVITED TALKS, MEDIA

1. Winner of *Jay Lepreau best paper award* in *USENIX OSDI (2018)*.
2. Invited talk on differential bug localization (ORCA) at USENIX Annual technical Conference (ATC). USENIX ATC '19 - Orca: Differential Bug Localization in Large-Scale Services - YouTube
3. Invited talk on AIOps in continuous software engineering. University of Victoria. AIOps in Continuous Software Engineering: A Q&A with Chandra Maddila - YouTube
4. My work is featured in prestigious tech magazine VentureBeat. Microsoft's Nudge service leverages AI to speed up completion of pull requests | VentureBeat
5. SPACE framework in Business Insider, InfoQ, and GitHub blog. GitHub Creates SPACE Framework for Developer Productivity (businessinsider.com), SPACE, a New Framework to Understand and Measure Developer Productivity (infoq.com), Measuring enterprise developer productivity - The GitHub Blog
6. My work is featured in prestigious Microsoft Research Podcast series. Podcast: Can we make better software by using ML and AI techniques? With Chandra Maddila and Chetan Bansal - Microsoft Research