

# ADHITHYA BHASKAR

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## EDUCATION

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### University of Southern California

May 2021 - Present

Ph.D. in Industrial and Systems Engineering

**Area of research:** Computational reproducibility and knowledge verification in machine learning

**Coursework:** Applied Natural Language Processing, Predictive Analysis, Data Mining

**Advisor:** Victoria Stodden

### University of Illinois at Urbana-Champaign

August 2016 - December 2020

B.S. in Mechanical Engineering, Minor in Computer Engineering

## EXPERIENCE

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### Flywheel.io

Urbana, IL

*Scientific Solutions Engineering Intern*

May 2022 - August 2022

- Implemented signal processing and filtering methods to extract cardiac physiological response measurements (PRFs) from raw fMRI data
- Containerized code and data for parallel deployment using Docker, reducing run time by over 60% (*Python, MATLAB, bash*)
- Wrote new optimization functions and refactored scripts to access and process ingested data efficiently, resulting in a 28% reduction of data access times and easily interpretable code

### National Center for Supercomputing Applications

Urbana, IL

*SPIN Intern*

June 2017 - July 2019

- Assessed implementation feasibility of Continuous Integration for computational reproducibility and co-authored – [Scientific Tests and Continuous Integration Strategies](#)
- Tested reproducibility of articles from the Journal of Computational Physics and Material Science and co-authored – [An Empirical Evaluation of Computational Reproducibility](#)
- Decreased result verification time by 60% by automating parameter testing, plot generation and result validation leading to the co-authorship of – [Introducing Three Principles and the Reproduction Package in the Philosophical Transactions A](#)
- Received the Jerry Fiddler Innovation Fellowship for interdisciplinary research articles

## PROJECTS

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### PhD Research - [ReproScreener](#)

- Assessed and developed metrics for empirically quantifying machine learning reproducibility
- Developed pipelines to mine, parse and extract text from arXiv research
- Contributed to project funded by the **USC-Meta Center fellowship**

### [Los Angeles crime and arrests - data analysis](#) *R - tidyverse, ggplot2, gganimate*

- Assessed discrepancies in victim and perpetrator demographics with statistical tests
- Determined primary factors that perpetuate thefts using decision tree analysis
- Analysed and created animated data visualizations for timeseries data to identify patterns in crimes by time of day, month and year

### Operating system development *C, x86*

- Implemented interrupts and kernel initialization of IDT, GDT, paging, keyboard and RTC drivers
- Developed a read/write filesystem and function interfaces for system calls and user programs
- Implemented multiple terminals and switching with virtual and video memory mapping

## SKILLS

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Programming Languages: Python, Bash, C, C++, x86, MATLAB

Tools: Docker, Singularity, TravisCI, Git, Creo, Fusion360

Languages: English, Japanese (Intermediate), Tamil, Hindi