

## Contact

roshinpally@gmail.com

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(Personal)

## Top Skills

Technical Leadership  
Software Architecture  
Artificial Intelligence (AI)

## Languages

Malayalam (Native or Bilingual)  
English (Full Professional)  
Hindi (Elementary)

## Certifications

Mastering React  
The Complete Node.js Course  
Leadership is everyone's business  
Elements of AI  
Complete Python Mastery

## Honors-Awards

Outstanding Graduate Award  
National Dean's List 2004-2006  
Eta Kappa Nu Association

## Publications

FM interference mitigation in a  
finitely correlated environment  
using a decorrelating time-varying  
autoregressive model

Modeling of time-varying Instantaneous  
Frequency in a finitely correlated  
environment

Implementation of Instantaneous  
Frequency Estimation based on  
Time-Varying AR Modeling

Non-stationary interference  
mitigation in continuous phase  
modulated signals using estimation  
subtraction

# Roshin Kadanna Pally

Principal Software Engineer and Technical Lead at The MathWorks  
Natick, Massachusetts, United States

## Summary

I am a Principal Software Engineer and Technical Lead at MathWorks. I have extensive experience delivering impactful software solutions. My expertise lies in designing and implementing advanced simulation and visualization tools, with a focus on the MATLAB, Simulink, and RoadRunner ecosystems.

I specialize in:

- Developing APIs and interactive visualization tools for autonomous systems and simulation environments.
- Leading cross-functional teams to deliver innovative features and mentoring new engineers.
- Full-stack development across JavaScript, C++, Python, and MATLAB, with a focus on creating elegant, intuitive, and user-friendly software solutions.

I'm passionate about solving complex challenges and building tools that empower engineers and scientists worldwide.

Feel free to connect if you'd like to network, discuss innovative projects, or share insights into software architecture and AI-driven solutions.

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## Experience

### MathWorks

14 years 9 months

#### Principal Software Engineer

May 2022 - Present (2 years 9 months)

Technical lead for Scenario/Scene Authoring, Maps, and Visualization APIs for MATLAB/RoadRunner ecosystem, covering Automated Driving Toolbox, RoadRunner, and RoadRunner Scenarios.

#### Senior Software Engineer

May 2016 - May 2022 (6 years 1 month)

## Greater Boston Area

Developed simulation and visualization tools using JavaScript, C++, and MATLAB

- Developed a JavaScript System Object Editor for MATLAB online
- Built canvas interactions for Scenario Designer and integrated Lidar and INS sensors
- Added lanes ground truth specification, visualization, and detection
- Developed Bird's-Eye Scope data pipeline and Scenario Reader module

Visit ➡ <https://www.mathworks.com/videos/driving-scenario-designer-1529302116471.html>

Contributed to the full-stack development of Logic Analyzer in Simulink

Visit ➡ <http://www.mathworks.com/videos/logic-analyzer-overview-121719.html>

## Software Engineer

December 2010 - May 2016 (5 years 6 months)

## Greater Boston Area

Contributed to the development of the new Simulink Scope and a Unified Scopes infrastructure

Visit ➡ <http://www.mathworks.com/videos/new-interface-for-scopes-106836.html>

- Developed simulation playback controls, style dialog, and a new programmatic interface
- Added support for sample times, enumerated data types, event-based signals, signal units
- Collaborated with UX and visual design to improve the new Simulink Scope GUI

Developed the System Object Editor front end in Java and MATLAB

Visit ➡ [https://www.mathworks.com/help/matlab/matlab\\_prog/insert-system-object-code-using-matlab-editor.html](https://www.mathworks.com/help/matlab/matlab_prog/insert-system-object-code-using-matlab-editor.html)

## Signal Processing and Communications User Interfaces Intern

May 2010 - December 2010 (8 months)

- Migrated legacy graphics APIs to the new MATLAB graphics system APIs
- Provided basic graphical property editing capabilities in the Simulink Scope
- Improved launch performance of Simulink Signal and Scope Manager by more than 50%
- Added internationalization (i18n) and localization (l10n) support for various GUIs

- Fixed numerous bugs in the infrastructure and improved usability of GUIs

## Virginia Polytechnic Institute and State University

### Research Assistant

June 2007 - May 2010 (3 years)

Blacksburg, VA

I received a graduate research scholarship from the DSP Research Lab at Virginia Tech directed by Dr. Louis Beex. I worked on various projects in Signal Processing and Communications. The projects involved research, development, and testing of software to implement signal processing algorithms. Additionally, I helped set up the design project for the DSP & Filter Design course, graded the course projects, and taught classes in the Signals and Systems course.

### eMerj

#### Engineering Intern

August 2006 - October 2006 (3 months)

- Implemented communication between a micro-controller & fingerprint reader evaluation board (RS-232), Serial EEPROM (I2C)
- Wrote embedded code to perform capture enrolling and capture verification of fingerprint templates; individually documented the project; team work in integration to an existing device

## SUNY New Paltz

### Teaching Assistant

August 2005 - December 2005 (5 months)

New Paltz, New York

Course: Computer Simulation Lab

- Administered MATLAB workshops and lab sessions
- Guided students in MATLAB graphical user interface development

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## Education

### Virginia Tech

M.S., Electrical Engineering · (2007 - 2009)

### SUNY New Paltz

B.S., Electrical Engineering · (2004 - 2006)