

# Rishav Gupta

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## Education

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**University of Maryland, Baltimore County** MS in Computer Science GPA: 4.0 Jan 2025 – Present

- Research advisor: Dr. Dong Li (Mobile Health and Sensing Lab). Research in smartphone-based physiological sensing: blood pressure estimation, soft tissue biomechanics, and embedded high-frequency audio systems.
- Coursework: Design and Analysis of Algorithms, Machine Learning, Neural Networks.

**Manipal Institute of Technology** BS in Information Technology Ranked 8th out of 132 Jun 2015 – May 2019

## Publications

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- Shirui Cao, Jie Xiong, **Rishav Gupta**, Sunghoon Ivan Lee, Jeremy Gummeson, and Dong Li. “Phonotonos: Through-Skin Ultrasonic Blood Flow Sensing Using Smartphones.” *ACM MobiSys 2026*. (Conditionally Accepted; Rebuttal Stage.)
- Renzhi Hao, Shirui Cao, Yizhu Wen, **Rishav Gupta**, Dharani Nadendla, Mehran Kafai, Hanqing Guo, and Dong Li. “Ultrasound Watermark: Real-Time Acoustic Watermarking for Voice Scam Protection on Smartphones.” *USENIX Security ’26, Cycle 2*. (Under Review.)

## Research Experience

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**Graduate Research Assistant** — UMBC, advised by Dr. Dong Li Jan 2025 – Present

- **Blood Pressure Sensing:** Cuff-free BP estimation by transmitting and receiving ultrasonic acoustic signals through skin via smartphone speaker and microphone.
- **Tissue Biomechanics:** Quantifying soft tissue viscoelastic properties (energy dissipation, relaxation, stiffness) via acoustic stimuli for human-machine interaction comfort modeling.
- **High-Frequency Audio Codec:** Extending smartphone audio sampling from 48 kHz to 192 kHz via external codec without device rooting, enabling high-resolution ultrasonic sensing.
- **Thyroid Detection (Future):** Flexible mesh acoustic transducer array for spatially resolved regional tissue assessment and thyroid morphology screening.
- Co-author on two papers: ACM MobiSys 2026 (Conditionally Accepted) and USENIX Security ’26 Cycle 2 (Under Review).

## Industry Experience

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**Gojek** — Senior iOS Developer Bengaluru, India Feb 2022 – Sep 2024

- Reduced annual platform costs by \$3M by replacing third-party analytics SDK (CleverTap) with an in-house open-source tool (Clickstream), maintaining full feature parity.
- Cut development time by 20% for all iOS engineers by automating the bi-weekly CI/CD release pipeline using Python and Shell scripting on GitLab.
- Reduced app binary size by approx. 3MB via Swift-Syntax AST-based dead code automation; doubled QA throughput via a real-time plug-and-play Event Visualizer tool.

**Nuclei (FinTech)** — Senior iOS Developer and Team Lead Bengaluru, India Jan 2019 – Feb 2022

- Founding iOS developer of FedMobile (Federal Bank); architected and built 60% of all features including Payments, Investments, Loans, Onboarding, and Card Management.
- Promoted to Team Lead; led four iOS developers, introduced structured weekly tracking, and closed a 4-month delivery gap between iOS and Android platforms.
- Raised app store rating from 3.8 to 4.2 by designing a context-aware Ratings and Feedback module that captures structured user feedback post-transaction.

**Hera doo (FinTech)** — Android Developer Intern Mostar, Bosnia Jun 2018 – Jul 2018

- Built end-to-end Android sales order application from scratch; increased sales by 25%.

## Technical Skills

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**Languages** Swift, SwiftUI, Java, Python, Shell, HTML, CSS, SQL

**Tools** Xcode, Android Studio, Wireshark, GitLab CI/CD

**Research** Acoustic signal processing, physiological sensing, tissue biomechanics, embedded audio, mobile health

## Leadership and Service

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- **HR Head**, ISTE Students’ Chapter, Manipal (2017–18). Managed member recruitment, onboarding, and internal communications; built systems that improved chapter-wide participation.
- **Co-Event Head (Acumen)**, TechTatva ’17 National Technical Festival, MIT (Oct 2017). Co-led a flagship event at one of India’s largest inter-collegiate technical festivals.
- **Management Committee Member**, ISTE Students’ Chapter, Manipal (2016–17).