

OFM Riaz Rahman Aranya

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Vision and Immersive Realities Lab (VIRLab)
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RESEARCH INTERESTS

- Medical Image Segmentation, Vision-Language Models for Clinical Applications, Explainable AI
- Radiology Report Generation, Longitudinal Change Analysis, Semi-Supervised Learning
- Synthetic-to-Real Domain Adaptation, Cross-Modal Image Reconstruction

EDUCATION

Ph.D. in Computer Science **Aug 2023 – Present**
The University of Texas at San Antonio, San Antonio, TX
Expected Graduation: 2028 | GPA: 4.00/4.00 | Advisor: [Dr. Kevin Desai](#)

B.Sc. in Computer Science and Engineering **Mar 2016 – Mar 2020**
Khulna University of Engineering & Technology, Bangladesh
GPA: 3.28/4.00

PUBLICATIONS

Journal Papers

1. A. Bagherian, **O.F.M. R. R. Aranya**, A. Kosub, et al. “Comprehensive Benchmarking of Deep Learning Approaches for Automated Astrocyte Segmentation in Traumatic Brain Injury.” *Journal of Neuropathology and Experimental Neurology*, 2025. [DOI](#)
2. P. Saha, M. S. Sadi, **O.F.M. R. R. Aranya**, S. Jahan, F. Islam. “COV-VGX: An Automated COVID-19 Detection System Using X-ray Images and Transfer Learning.” *Informat-ics in Medicine Unlocked*, 26:100741, 2021. [DOI](#)

Conference Papers

3. **O.F.M. R. R. Aranya**, P. Rad, K. Desai. “GRCD: Grounded Region Change Detection for Multi-Finding Chest X-Ray Pairs.” *British Machine Vision Conference (BMVC) 2026* (Submitted).
4. M. B. Akram, A. H. M. N. Sakib, **O.F.M. R. R. Aranya**, R. Wijewickrama, K. Desai, M. Jadliwala. “ThermalTap: Passive Application Fingerprinting in VR Headsets via Thermal Side Channels.” *Network and Distributed System Security (NDSS) Symposium 2027* (Submitted). [\[arXiv\]](#)
5. **O.F.M. R. R. Aranya**, K. Desai. “SRA-Seg: Synthetic to Real Alignment for Semi-Supervised Medical Image Segmentation.” *International Conference on Pattern Recognition (ICPR)*, 2026. (To appear) [\[arXiv\]](#) [\[Project\]](#) [\[Code\]](#)
6. **O.F.M. R. R. Aranya**, K. Desai. “TRACE: Temporal Radiology with Anatomical Change Explanation for Grounded X-ray Report Generation.” *International Conference on Pattern Recognition (ICPR)*, 2026. (To appear) [\[arXiv\]](#) [\[Project\]](#) [\[Code\]](#)

7. **O.F.M. R. R. Aranya**, K. Desai. “To Agree or To Be Right? The Grounding-Sycophancy Tradeoff in Medical Vision-Language Models.” *CVPR Workshop (Med-Reasoner)*, 2026. [\[Oral\]](#) [\[Best paper award\]](#) [\[PDF\]](#) [\[arXiv\]](#) [\[Project\]](#) [\[Code\]](#)
8. A. N. M. Sakib, **O.F.M. R. R. Aranya**, K. Desai, Z. Zhang. “Toward Faithful Segmentation Attribution via Benchmarking and Dual-Evidence Fusion.” *CVPR Workshop (HOW)*, 2026. [\[PDF\]](#) [\[arXiv\]](#) [\[Code\]](#)
9. S. Das, **O.F.M. R. R. Aranya**, N. N. Labiba. “Brain Tumor Classification Using Convolutional Neural Network.” *IEEE ICASERT*, 2019. [DOI](#)

RESEARCH EXPERIENCE

Graduate Research Assistant | *VIRLab, UTSA*
Advisor: [Dr. Kevin Desai](#)

Jan 2026 – Present

- Research on medical image segmentation, cross-modal reconstruction, and vision-language models for clinical applications.
- Key results: SRA-Seg (89.34% Dice, ACDC, 10% labels), TRACE (90.2% grounding accuracy), TRACE-R (substantially outperforming TRACE across all clinical metrics).
- Discovered the grounding-sycophancy tradeoff in medical VLMs (CSI < 0.35 across all models).
- Clinical collaborations: OCT-to-histology cardiac reconstruction with a practicing cardiologist; cross-institutional neuropathology segmentation.

TEACHING EXPERIENCE

Instructor

Aug 2023 – Dec 2025

Department of Computer Science, The University of Texas at San Antonio

- CS 2113 – Fundamentals of Object-Oriented Programming (Fall 2025)
- CS 3443 – Application Programming (Fall 2024)

Teaching Assistant

Department of Computer Science, The University of Texas at San Antonio

- CS 4843 – Cloud Computing (Summer 2025, Spring 2025)
- CS 3853 – Computer Architecture (Summer 2024)
- CS 3443 – Application Programming (Spring 2024)
- CS 2233 – Discrete Math Structures (Fall 2023)

INDUSTRY EXPERIENCE

Software Engineer | *RedDot Digital Ltd, Dhaka, Bangladesh*
Designed solution architecture and developed RESTful APIs for enterprise applications.

Mar 2023 – Jul 2023

Jr. Software Engineer | *Nascenia Ltd, Dhaka, Bangladesh*

Dec 2020 – Feb 2023

Full-stack developer (Ruby on Rails). Designed solution architectures, delivered multiple production systems, and mentored junior engineers.

ACADEMIC SERVICE

Peer Review

- Med-Reasoning Workshop, CVPR 2026 (2 papers reviewed)
 - IEEE Signal Processing Letters (5 paper reviewed)
 - Informatics in Medicine Unlocked, Elsevier (1 paper reviewed)
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LEADERSHIP & SERVICE

- Bangladesh Student Association at UTSA – **Treasurer** (2024–2025). Managed finances and event budgeting for 100+ member community.
 - Jashore Association of KUET – **Vice President** (2019–2020), **General Secretary** (2018–2019).
 - HACK (Hardware Acceleration Club of KUET) – **General Secretary** (2019–2020).
 - Dream (Voluntary Blood Donation Society of KUET) – Asst. General Secretary (2019–2020).
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HONORS & AWARDS

- Published work (COV-VGX) recognized under the **United Nations Sustainable Development Goal 3** (Good Health and Well-being).
 - 1st Runner Up, LICT Project Showcasing, Jashore IT Park, 2019.
 - Board Scholarship (General Merit), Jashore Board, 2015.
 - Champion, High Jump, KUET (2019, 2020); 2nd Runner Up, Long Jump (2019).
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PROFESSIONAL MEMBERSHIP

- IEEE Member (ID: 99988407), June 2024 – Present.
 - CVF Member (ID: b7b14c38cc), March 2024 – Present.
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TECHNICAL SKILLS

Languages: Python, Ruby, Java, C, C++
ML/DL: PyTorch, TensorFlow, HuggingFace Transformers
Web: Ruby on Rails, JavaScript, HTML/CSS
Tools: Docker, Git, Linux, LaTeX, MySQL