

# Md Mahfuzur Rahman Siddiquee

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## EDUCATION

<b>Ph.D. in Computer Science</b> , GPA: 4.00/4.00 Arizona State University	2017–Current Tempe, AZ, USA
<ul style="list-style-type: none"><li>– Research Area: Medical Imaging, Computer Vision, Deep Learning</li><li>– Advisor: Dr. Baoxin Li, Dr. Teresa Wu</li></ul>	
<b>B.S. in Computer Science and Engineering</b> , GPA: 3.70/4.00 North South University	2011–2015 Dhaka, BGD

## EXPERIENCE

<b>Arizona State University</b> Graduate Research Assistant	Tempe, AZ, USA Aug 2017–Current
<ul style="list-style-type: none"><li>– Patented 5+ inventions and published 15+ research papers in top conferences including CVPR, ICCV, WACV, MICCAI, and top journals including TMI, Media. My publications have received 6400+ citations.</li></ul>	
<b>NVIDIA Inc.</b> Applied Research Intern	Santa Clara, CA, USA Summer 2021 & 2022
<ul style="list-style-type: none"><li>– <i>MONAI Auto3dseg</i> (<a href="https://docs.monai.io/en/stable/auto3dseg.html">docs.monai.io/en/stable/auto3dseg.html</a>)</li><li>– Built this automated segmentation framework to quickly develop state-of-the-art segmentation models, especially for non-expert users. I won multiple medical image segmentation challenges using this framework.</li></ul>	
<b>Harpa Italia s.r.l</b> Software Developer	Rome, ITA Feb 2016–Jul 2017
<ul style="list-style-type: none"><li>– Developed and delivered an energy consumption monitoring system.</li></ul>	

## SELECTED AWARDS

• 1 <sup>st</sup> Place in Head and Neck Tumor Segmentation Challenge (HECKTOR), MICCAI 2022	Sept 2022
• 2 <sup>nd</sup> Place in Intracranial Hemorrhage Segmentation Challenge (INSTANCE), MICCAI 2022	Sept 2022
• 2 <sup>nd</sup> Place in Ischemic Stroke Lesion Segmentation Challenge (ISLES), MICCAI 2022	Sept 2022
• 1 <sup>st</sup> Place in Fetal Brain Tissue Annotation and Segmentation Challenge (FeTA), MICCAI 2021	Oct 2021
• 4 <sup>th</sup> Place in RSNA-ASNR-MICCAI Brain Tumor Segmentation (BraTS) Challenge 2021	Nov 2021
• Engineering Graduate Fellowship by Ira A. Fulton School of Engineering	May 2020
• Conference Travel Grant by Graduate and Professional Student Association, Arizona State University	Apr 2020
• Conference Travel Grant by International Conference on Computer Vision	Oct 2019
• CIDSE Conference Travel Award by Arizona State University	Oct 2019
• Conference Travel Grant by Graduate and Professional Student Association, Arizona State University	Aug 2019
• Conference Travel Grant by Graduate and Professional Student Association, Arizona State University	Mar 2019
• Outstanding Contribution in Reviewing by Journal of Biomedical Informatics	Jun 2018
• 2 <sup>nd</sup> Prize in the Annual Student Poster Competition by BMI/BMD Symposium, Arizona State University	Apr 2018

- [1] **M. M. Rahman Siddiquee**, J. Shah, T. Wu, C. Chong, T. J. Schwedt, G. Dumkrieger, S. Nikolova, and B. Li, “Brainomaly: Unsupervised neurologic disease detection utilizing unannotated t1-weighted brain mr images”, *WACV*, 2024.
- [2] F. Al-Hindawi, T. Soori, H. Hu, **M. M. Rahman Siddiquee**, H. Yoon, T. Wu, and Y. Sun, “A framework for generalizing critical heat flux detection models using unsupervised image-to-image translation”, *Expert Systems with Applications*, 2023.
- [3] K. Payette, H. Li, P. de Dumast, R. Licandro, H. Ji, **M. M. Rahman Siddiquee**, D. Xu, A. Myronenko, H. Liu, Y. Pei, *et al.*, “Fetal brain tissue annotation and segmentation challenge results”, *MedIA*, 2023.
- [4] **M. M. Rahman Siddiquee**, J. Shah, C. Chong, S. Nikolova, G. Dumkrieger, B. Li, T. Wu, and T. J. Schwedt, “Headache classification and automatic biomarker extraction from structural mris using deep learning”, *Brain Communications*, 2023.
- [5] J. Shah, **M. M. Rahman Siddiquee**, J. Krell-Roesch, J. A. Syrjanen, W. K. Kremers, M. Vassilaki, E. Forzani, T. Wu, and Y. E. Geda, “Neuropsychiatric symptoms and commonly used biomarkers of alzheimer’s disease: A literature review from a machine learning perspective”, *Journal of Alzheimer’s Disease*, 2023.
- [6] A. Myronenko, **M. M. Rahman Siddiquee**, D. Yang, Y. He, and D. Xu, “Automated head and neck tumor segmentation from 3d pet/ct hecktor 2022 challenge report”, in *MICCAI HECKTOR Challenge*, 2022.
- [7] C. Peng, A. Myronenko, A. Hatamizadeh, V. Nath, **M. M. Rahman Siddiquee**, Y. He, D. Xu, R. Chellappa, and D. Yang, “Hypersegнас: Bridging one-shot neural architecture search with 3d medical image segmentation using hypernet”, in *CVPR*, 2022.
- [8] **M. M. Rahman Siddiquee** and A. Myronenko, “Redundancy reduction in semantic segmentation of 3d brain tumor mris”, in *MICCAI Brainlesion Workshop*, 2022.
- [9] **M. M. Rahman Siddiquee**, J. Shah, T. Wu, C. Chong, T. Schwedt, and B. Li, “Healthygan: Learning from unannotated medical images to detect anomalies associated with human disease”, in *MICCAI SASHIMI Workshop*, 2022.
- [10] **M. M. Rahman Siddiquee**, D. Yang, Y. He, D. Xu, and A. Myronenko, “Automated 3d segmentation of renal structures for renal cancer treatment”, in *MICCAI Challenge on Correction of Brainshift with Intra-Operative Ultrasound*, 2022.
- [11] **M. M. Rahman Siddiquee** and A. Myronenko, “Robust 3d mri segmentation of multiple sclerosis lesions”, *MSSEG-2 challenge proceedings*, 2021.
- [12] **M. M. Rahman Siddiquee**, Z. Zhou, N. Tajbakhsh, R. Feng, M. B. Gotway, Y. Bengio, and J. Liang, “Learning fixed points in generative adversarial networks: From image-to-image translation to disease detection and localization”, in *ICCV*, 2019.
- [13] Z. Zhou, **M. M. Rahman Siddiquee**, N. Tajbakhsh, and J. Liang, “Unet++: Redesigning skip connections to exploit multiscale features in image segmentation”, *IEEE TMI*, 2019.
- [14] Z. Zhou, V. Sodha, **M. M. Rahman Siddiquee**, R. Feng, N. Tajbakhsh, M. B. Gotway, and J. Liang, “Models genesis: Generic autodidactic models for 3d medical image analysis”, in *MICCAI*, 2019, [Young Scientist Award, Best Paper Award].
- [15] Z. Zhou, **M. M. Rahman Siddiquee**, N. Tajbakhsh, and J. Liang, “Unet++: A nested u-net architecture for medical image segmentation”, in *DLMIA*, 2018.

## PATENTS

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- [1] J. Liang, Z. Zhou, N. Tajbakhsh, and **M. M. R. Siddiquee**, “Systems, methods, and apparatuses for implementing fixed-point image-to-image translation using improved generative adversarial networks (gans)”, US Patent App. 17/477,088, Mar. 2022.
- [2] Z. Zhou, **M. M. R. Siddiquee**, N. Tajbakhsh, and J. Liang, “Methods, systems, and media for segmenting images”, US Patent 11,328,430, May 2022.
- [3] Z. Zhou, V. Sodha, **M. M. R. Siddiquee**, R. Feng, N. Tajbakhsh, and J. Liang, “Systems, methods, and apparatuses for the generation of source models for transfer learning to application specific models used in the processing of medical imaging”, US Patent App. 17/625,313, Aug. 2022.
- [4] J. Liang, Z. Zhou, **M. M. R. Siddiquee**, and N. Tajbakhsh, “Systems, methods, and apparatuses for implementing a multi-resolution neural network for use with imaging intensive applications including medical imaging”, US Patent 11,164,067, Nov. 2021.
- [5] **M. M. R. Siddiquee**, Z. Zhou, R. Feng, N. Tajbakhsh, and J. Liang, “Methods, systems, and media for discriminating and generating translated images”, US Patent 11,164,021, Nov. 2021.

## TEACHING

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- **Instructor** at Arizona State University Fall 2020, Fall 2019  
*Introduction to Engineering (FSE 100)*
- **Teaching Assistant** at Arizona State University Fall 2020  
*Introduction to Programming (CSE 110)*
- **Instructor** at Arizona State University Summer 2020  
*Introduction to Programming (CSE 110)*
- **Instructor** at Arizona State University Spring 2020  
*CS Capstone Project I (CSE 485)*

## SKILLS

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- **Programming:** Python, C/C++, Java, Javascript, PHP, Bash
- **Deep Learning:** Pytorch, Keras, Tensorflow, Caffe
- **Web Development:** HTML, CSS, Node.js
- **Database:** MySQL, MongoDB

## LANGUAGES

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- **Bangla:** native proficiency
- **English:** full professional proficiency
- **Italian:** limited working proficiency

## SERVICES

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- **Journal Reviewer:** IEEE Access, JBI, MedIA, IEEE TBME, IEEE TIP, IEEE TMI
- **Conference Reviewer:** AAAI 2023, AAAI 2022, CVPR 2023, CVPR 2022, ECCV 2022, ICCV 2023, WACV 2020
- Travel and Research Grant Reviewer at Graduate and Professional Student Association, Arizona State University  
Fall 2018–Summer 2019