# Dr. Sajid Muhaimin Choudhury

Associate Professor, Department of EEE, BUET

♥ Dhaka, Bangladesh ☑ sajid@eee.buet.ac.bd *❸* sajid.buet.ac.bd **in** sajidmc

# Brief Biography \_\_\_\_\_

RenderCV Z is a LaTeX-based CV/resume version-control and maintenance app. It allows you to create a high-quality CV or resume as a PDF file from a YAML file, with Markdown syntax support and complete control over the LaTeX code.

The boilerplate content was inspired by Gayle McDowell \(\mathbb{L}\).

## Quick Guide \_\_\_\_\_

- Each section title is arbitrary and each section contains a list of entries.
- There are 7 unique entry types: BulletEntry, TextEntry, EducationEntry, ExperienceEntry, NormalEntry, PublicationEntry, and OneLineEntry.
- Select a section title, pick an entry type, and start writing your section!
- Here **\(\mathbb{L}\)**, you can find a comprehensive user guide for RenderCV.

#### Education \_\_\_\_

 ${\bf Ph.D.} \qquad \quad {\bf Purdue\ University}, \ {\bf West\ Lafayette}, \ {\bf IN}, \ {\bf USA}$ 

Aug 2013 – Aug 2019

School of Electrical and Computer Engineering

- **Ph.D. Thesis:** WAVEFRONT MANIPULATION WITH META-SURFACES BASED ON NEW MATERIALS
- Ph.D. Co-supervisor(s): Alexandra Boltasseva and Alexander Kildishev

M.Sc. Bangladesh University of Engineeing and Technology (BUET)

Aug 2011 – 2013

Department of Electrical and Electronic Engineering

- M.Sc. Engg. Thesis: Design of a Fractal Antenna based on Hexaflake Fractal Structure
- M.Sc. Engg. Supervisor: Dr. M. A. Matin

B.Sc. Bangladesh University of Engineeing and Technology (BUET)

Dec 2004 – Aug 2010

- Department of Electrical and Electronic Engineering
  - CGPA: 3.94/4.0
  - Undergraduate Thesis: Design and Analysis of a Multiband Dual Feed Axially Symmetric Cassegrain Antenna System
  - Undergraduate Supervisor: Dr. M. A. Matin

H.S.C. Notre Dame College, Dhaka

2004

• GPA: 5.00/5.00

S.S.C. Udayan Uchchya Madhyamic Bidyalaya, Dhaka

2002

• GPA: 5.00/5.00

#### Experience \_\_\_\_\_

Associate Professor, Department of Electrical and Electronic Engineering (EEE) Bangladesh University of Engineering and Technology (BUET)

July 2022 – to date

Assistant Professor, Department of Electrical and Electronic Engineering (EEE)

June 2013 - July 2022

Bangladesh University of Engineering and Technology (BUET)

Lecturer, Department of Electrical and Electronic Engineering (EEE)

Bangladesh University of Engineering and Technology (BUET)

Jan 2010 - June 2013

Lecturer, Institute of Information and Communication Technology (IICT)

Bangladesh University of Engineering and Technology (BUET)

Nov  $2011 - Jan\ 2010$ 

#### Publications.

#### Journal Articles

- [J24] M. M. Haque, M. R. Islam, and S. M. Choudhury. "Investigation of the physical properties through strain effect of monolayer silicon carbide material: DFT analysis". In: *Physica B: Condensed Matter* 697 (2025), p. 416670. DOI: 10.1016/j.physb.2024.416670 . URL: https://www.sciencedirect.com/science/article/pii/S0921452624010111.
- [J23] M. E. Karim, M. R. Karim, and S. M. Choudhury. "Synergizing deep learning and phase change materials for four-state broadband multifunctional metasurfaces in the visible range". In: *Optics & Laser Technology* 181 (2025), p. 111730. DOI: 10.1016/j.optlastec.2024.111730 **Z**. URL: https://www.sciencedirect.com/science/article/pii/S0030399224011885.
- [J22] M. A. H. Bhuiyan, P. Das, and S. M. Choudhury. "Polarization insensitive electrically reconfigurable metalens for the 2 μmwavelength". In: Opt. Mater. Express 14.12 (Dec. 2024), pp. 2830–2843. DOI: 10.1364/OME.540435 . URL: https://opg.optica.org/ome/abstract.cfm?URI=ome-14-12-2830.
- [J21] M. E. Karim and S. M. Choudhury. "Sb2S3/AlGaAs based Reconfigurable Metasurface for Dynamic Polarization and Directionality Control of Quantum Emitter Emission". In: RSC Advances 40 (2024). DOI: 10.1039/D4RA03726J ... URL: https://doi.org/10.1039/D4RA03726J.
- [J20] P. Mahmud, K. F. Supti, and S. M. Choudhury. "Lithium niobate photonic topological insulator-based multi-wavelength optical demultiplexer with piezoelectric switch-off". In: *Opt. Express* 32.26 (Dec. 2024), pp. 45786-45800. DOI: 10.1364/OE.541271 Z. URL: https://opg.optica.org/oe/abstract.cfm?URI=oe-32-26-45786.
- [J19] M. H. Himel, B. Sikder, T. Ahmed, and S. M. Choudhury. "Biomimicry in Nanotechnology: A Comprehensive Review". In: *NanoScale Advances* 5 (2023), pp. 595–614. DOI: 10.1039/D2NA00571A . URL: https://doi.org/10.1039/D2NA00571A.
- [J18] M. E. Karim and S. M. Choudhury. "Reconfigurable Broadband Metasurface with Switchable Functionalities in the Visible Range". In: Optical Materials Express 13.5 (2023), pp. 1409–1423. URL: 10.1364/OME. 489981.
- [J17] M. A. H. Bhuiyan, S. A. Mitu, and S. M. Choudhury. "TiN-GST-TiN all-optical reflection modulator for the 2μmwavebandreaching85%efficiency". In: Applied Optics 61 (2022), pp. 9262–9270. DOI: 10.1364/A0.470247 🗹.
- [J16] H. Roy, E. Karim, S. Mondal, and S. M. Choudhury. "Custom Gold-Patterned Rewritable Optical Disc based Plasmonic Sensor for Blood Hemoglobin Detection". In: *Optics Continuum* 1.10 (2022). DOI: 10.1364/OPTCON.473106 .
- [J15] Y. F. Abed, M. A. H. Bhuiyan, and S. M. Choudhury. "T Grating on Nano-Cavity Array based Refractive Index Sensor". In: J. Opt. Soc. Am. B 39.9 (2021). DOI: 10.1364/JOSAB.426526 Z.
- [J14] M. M. Hassan, F. S. Sium, F. Islam, and S. M. Choudhury. "A Review on Plasmonic Nano-biosensors for Virus Detection with a Focus on Coronavirus". In: Sensing and Biosensing Research 33 (2021), p. 100429. DOI: 10.1016/j.sbsr.2021.100429 亿.
- [J13] A. Sarker, S. A. Mitu, P. Das, and S. M. Choudhury. "Structurally Tunable Gear-Shaped Plasmonic Sensor". In: Optics Express 28.24 (2020), pp. 36070–36083. DOI: 10.1364/0E.410123 Z.
- [J12] H. Jiang, S. Choudhury, Z. A. Kudyshev, D. Wang, P. Xiao, Y. Jiang, and A. V. Kildishev. "Enhancing sensitivity to ambient refractive index with tunable few-layer graphene/hBN nanoribbons". In: *Photonics Research* 7.7 (2019), pp. 815–822. URL: 10.1364/PRJ.7.000815.

- [J11] H. Jiang, H. Reddy, D. Shah, Z. A. Kudyshev, S. Choudhury, D. Wang, Y. Jiang, and A. V. Kildishev. "Modulating Phase by Metasurfaces with Gated Ultra-thin TiN Films". In: Nanoscale 11 (2019), pp. 11167—11172. DOI: 10.1039/C9NR00205G Z. URL: https://pubs.rsc.org/en/content/articlehtml/2019/nr/c9nr00205g.
- [J10] O. Quevedo-Teruel, H. Chen, A. Díaz-Rubio, G. Gok, A. Grbic, G. Minatti, E. Martini, S. Maci, G. V. Eleftheriades, M. Chen, N. I. Zheludev, N. Papasimakis, S. Choudhury, Z. A. Kudyshev, S. Saha, H. Reddy, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, D. Sievenpiper, C. Caloz, A. Alù, Q. He, L. Zhou, G. Valerio, E. Rajo-Iglesias, Z. Sipus, F. Mesa, R. Rodríguez-Berral, F. Medina, V. Asadchy, S. Tretyakov, and C. Craeye. "Roadmap on metasurfaces". In: *Journal of Optics* 21.7 (2019), p. 073002. DOI: 10.1088/2040-8986/ab161d \(\mathbf{L}\).
- [J9] M. Song, D. Wang, S. Peana, S. Choudhury, P. Nyga, Z. A. Kudyshev, H. Yu, A. Boltasseva, V. M. Shalaev, and A. V. Kildishev. "Colors with plasmonic nanostructures: A full-spectrum review". In: Applied Physics Reviews 6 (2019), p. 041308. URL: https://aip.scitation.org/doi/10.1063/1.5110051.
- [J8] S. M. Choudhury, D. Wang, K. Chaudhuri, C. DeVault, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev. "Material platforms for optical metasurfaces". In: *Nanophotonics* 7.6 (2018), pp. 959–987. URL: 10.1515/nanoph-2017-0130.
- [J7] S. Choudhury, U. Guler, A. Shaltout, V. M. Shalaev, A. V. Kildishev, and A. Boltasseva. "Pancharat-nam-Berry Phase Manipulating Metasurface for Visible Color Hologram Based on Low Loss Silver Thin Film". In: Advanced Optical Materials 5 (2017), p. 1700196. URL: 10.1002/adom.201700196.
- [J6] V. A. Zenin, S. Choudhury, S. Saha, V. M. Shalaev, A. Boltasseva, and S. I. Bozhevolnyi. "Hybrid plasmonic waveguides formed by metal coating of dielectric ridges". In: Optics Express 25.11 (2017), pp. 12295–12302. URL: 10.1364/0E.25.012295.
- [J5] J. Kim, S. Choudhury, C. DeVault, Y. Zhao, A. V. Kildishev, V. M. Shalaev, A. Alù, and A. Boltasseva. "Controlling the Polarization State of Light with Plasmonic Metal Oxide Metasurface". In: ACS Nano 10.10 (2016), pp. 9326-9333. URL: http://pubs.acs.org/doi/full/10.1021/acsnano.6b03937.
- [J4] S. Choudhury and M. Matin. "Multiport Analysis of Hexagonal Patch Antenna". In: *IJECCT* 3.3 (2013). URL: https://journal.uniten.edu.my/index.php/ijecct/article/view/58.
- [J3] M. Gaffar, M. Zaman, S. Choudhury, and M. A. Matin. "Design and optimisation of a novel dual-band circularly polarised microstrip antenna". In: *IET Microwaves and Antennas & Propagation* 5.14 (2011), pp. 1670–1674. DOI: 10.1049/iet-map.2010.0050 **Z**. URL: https://dx.doi.org/10.1049/iet-map.2010.0050.
- [J2] M. Zaman, S. Mamun, M. Gaffar, S. Choudhury, M. M. Alam, and M. Matin. "Phased Array Synthesis Using Modified Particle Swarm Optimization". In: *Journal of Engineering Science & Technology Review* 4.1 (2011). DOI: 10.25103/jestr.041.10 **\(\mathbb{L}\)**. URL: https://dx.doi.org/10.25103/jestr.041.10.
- [J1] M. A. Zaman, M. Gaffar, M. M. Alam, S. A. Mamun, S. M. Choudhury, and M. Matin. "Approximate Closed-Form Expression of the Electric Field of a Conical Horn Antenna". In: *International Journal of Computer and Electrical Engineering* 3.1 (2011), p. 48. URL: http://ijcee.org/papers/291-E337.pdf.

#### Conference Proceedings

- [C23] M. T. Alam, Y. Mahmud, Z. J. Nikita, and S. M. Choudhury. "Gesture Controlled Bot with Temperature & Humidity (TH) Sensing Features". In: 2024 2nd International Conference on Information and Communication Technology (ICICT). 2024, pp. 36–40. DOI: 10.1109/ICICT64387.2024.10839649 2.
- [C22] M. A. H. Bhuiyan, S. A. Mitu, and S. M. Choudhury. "VO2-based All-optical Reflection Modulator for  $2\mu mWaveBand$ ". In: 2023 IEEE Photonics Conference (IPC). 2023, pp. 1–2. DOI: 10.1109/IPC57732. 2023.10360477  $\mathbf{Z}$ .
- [C21] S. A. Khan, S. T. Azad, T. Mondal, A. J. Bin Iqbal, and S. M. Choudhury. "Development of an Internet of Things based Bangla Calendar Clock". In: 2023 26th International Conference on Computer and Information Technology (ICCIT). 2023, pp. 1–6. DOI: 10.1109/ICCIT60459.2023.10441436 \(\mathbb{L}\).

- [C20] A. Mukit, M. S. H. Bijoy, S. M. Choudhury, and M. T. Mahmud. "Discrete Modulated Continuous-Variable Quantum Key Distribution: Security and Noise Tolerance Enhanced by Decoy States and Effective Error Correction Protocol Integration". In: 2023 IEEE International Conference on Telecommunications and Photonics (ICTP). 2023, pp. 1–5. DOI: 10.1109/ICTP60248.2023.10490525 🗹.
- [C19] K. R. Pritom, M. E. Karim, and S. M. Choudhury. "A Polarization Insensitive Achromatic Metalens Operating at Two Wavelengths in Visible Regime". In: 2023 IEEE International Conference on Telecommunications and Photonics (ICTP). 2023, pp. 01–05. DOI: 10.1109/ICTP60248.2023.10491019 2.
- [C18] S. Sarkar and S. M. Choudhury. "Design and Performance Analysis of a c-Si Thin-Film Solar Cell Using Plasmonic Ag Nanostructures". In: 2023 IEEE International Conference on Telecommunications and Photonics (ICTP). 2023, pp. 01–05. DOI: 10.1109/ICTP60248.2023.10490886 2.
- [C17] L. J. Prokopeva, H. Jiang, A. V. Kildishev, D. Wang, and S. Choudhury. "Computationally efficient surface conductivity graphene model for tunable graphene-based devices (Conference Presentation)". In: Proceedings of SPIE Volume 11282, SPIE OPTO, 2020, San Francisco, California, United States. 2020, pp. 1–2. DOI: 10.1117/12.2547341 Z.
- [C16] Z. A. Kudyshev, L. J. Prokopeva, M. Song, S. Choudhury, and A. V. Kildishev. "Bi-anisotropic homogenization for efficient metasurface design (invited)". In: 2018 International Applied Computational Electromagnetics Society Symposium (ACES). 2018, pp. 1–2. DOI: 10.23919/ROPACES.2018.8364134 \(\mathbb{Z}\).
- [C15] S. Choudhury, V. A. Zenin, S. Saha, V. M. Shalaev, S. Bozhevolnyi, and A. Boltasseva. "Novel Hard Mask Fabrication Method for Hybrid Plasmonic Waveguide and Metasurfaces". In: Frontiers in Optics 2017. Optica Publishing Group, 2017, JTu2A.12. DOI: 10.1364/FI0.2017.JTu2A.12 L. URL: https://opg.optica.org/abstract.cfm?URI=Fi0-2017-JTu2A.12.
- [C14] S. M. Choudhury, A. Shaltout, V. M. Shalaev, A. V. Kildishev, and A. Boltasseva. "Experimental Realization of Color Hologram Using Pancharatnam-Berry Phase Manipulating Metasurface". In: Conference on Lasers and Electro-Optics. Optica Publishing Group, 2016, FF1D.8. DOI: 10.1364/CLEO\_QELS.2016. FF1D.8 ... URL: https://opg.optica.org/abstract.cfm?URI=CLEO\_QELS-2016-FF1D.8.
- [C13] S. M. Choudhury, A. Shaltout, V. M. Shalaev, A. Boltasseva, and A. V. Kildishev. "Color Hologram Generation Using a Pancharatnam-Berry Phase Manipulating Metasurface". In: CLEO: 2015. Optica Publishing Group, 2015, JTu5A.89. URL: https://opg.optica.org/abstract.cfm?URI=CLEO\_SI-2015-JTu5A.89.
- [C12] P. Ahmmed, Z. Ahmed, M. I. J. Rafee, M. A. Awal, and S. M. Choudhury. "Self-localization of a mobile robot using monocular vision of a chessboard pattern". In: 8th International Conference on Electrical and Computer Engineering. 2014, pp. 753–756. DOI: 10.1109/ICECE.2014.7026828 .
- [C11] J. Kim, B. Memarzadeh, A. Dutta, S. M. Choudhury, A. V. Kildishev, H. Mosallaei, and A. Boltasseva. "GZO/ZnO Multilayered nanodisk metasurface to engineer the plasma frequency". In: *CLEO: 2014*. Optica Publishing Group, 2014, FW1K.4. DOI: 10.1364/CLEO\_QELS.2014.FW1K.4 Z. URL: https://opg.optica.org/abstract.cfm?URI=CLEO\_QELS-2014-FW1K.4.
- [C10] J. Kim, Y. Zhao, A. Dutta, S. M. Choudhury, A. V. Kildishev, A. Alu, and A. Boltasseva. "Nanostructured Transparent Conducting Oxide Films for Polarization Control with Plasmonic Metasurfaces". In: *CLEO: 2014*. Optica Publishing Group, 2014, FF2C.2. DOI: 10.1364/CLEO\_QELS.2014.FF2C.2 Z. URL: https://opg.optica.org/abstract.cfm?URI=CLEO\_QELS-2014-FF2C.2.
- [C9] S. M. Choudhury and M. A. Matin. "Effect of FSS ground plane on second iteration of hexaflake fractal patch antenna". In: 2012 7th International Conference on Electrical and Computer Engineering. 2012, pp. 694–697. DOI: 10.1109/ICECE.2012.6471645 .
- [C8] S. M. L. Kabir, M. S. Hussain, S. M. Choudhury, and A. H. Chowdhury. "Developing A Low-Cost Multiple Motor Switched Photovoltaic Powered Irrigation System". In: Proceedings of the 3rd International Conference on Water and Flood Management (ICWFM-2011). Vol. 2, 2011, pp. 577–581.
- [C7] S. M. Choudhury, M. A. Zaman, M. Gaffar, and M. A. Matin. "A Novel Approach for Changing Bandwidth of FSS Filter Using Gradual Circumferential Variation of Loaded Elements". In: Proceedings of Progress in Electromagnetic Research Symposium PIERS, Cambridge, USA. 2010.
- [C6] S. M. Choudhury, M. Gaffar, M. A. Zaman, and M. A. Matin. "Design of an X band aperture matched horn antenna by optimization of back-lobe and cross-polarization level". In: *International Conference on Electrical & Computer Engineering (ICECE 2010)*. 2010, pp. 550–553. DOI: 10.1109/ICELCE.2010. 5700751 .

- [C5] M. Gaffar, S. M. Choudhury, M. A. Zaman, M. I. Momtaz, M. S. Alam, and M. A. Matin. "Sensitivity analysis of a circularly polarized U-slot microstrip antenna". In: *International Conference on Electrical & Computer Engineering (ICECE 2010)*. 2010, pp. 546–549. DOI: 10.1109/ICELCE.2010.5700750 .
- [C4] M. A. Zaman, M. Gaffar, S. M. Choudhury, and M. A. Matin. "Optimization and analysis of a Ka band Pickett Potter horn antenna with low cross polarization". In: *International Conference on Electrical & Computer Engineering (ICECE 2010)*. 2010, pp. 542–545. DOI: 10.1109/ICELCE.2010.5700749
- [C3] M. Matin, M. A. Zaman, S. M. Choudhury, and M. Gaffar. "Analysis of a conical corrugated horn operating in the K-band with low cross-polarization and high aperture efficiency, and observing its radiation patterns". In: 2009 IEEE Antennas and Propagation Society International Symposium. 2009, pp. 1–4. DOI: 10.1109/APS.2009.5171493 .
- [C2] M. A. Zaman, S. M. Choudhury, M. Gaffar, and M. A. Matin. "Modeling the illumination function of a cassegrain reflector for a corrugated horn feed and calculation of the far field pattern". In: 2009 Loughborough Antennas & Propagation Conference. 2009, pp. 101–104. DOI: 10.1109/LAPC.2009.5352533 .
- [C1] S. M. Choudhury. "Design and implementation of a low cost Power Factor Improvement device". In: TEN-CON 2008 2008 IEEE Region 10 Conference. 2008, pp. 1–4. DOI: 10.1109/TENCON.2008.4766529

#### **Patents**

- [P2] E. Marinero-Caceres, A. Toppo, S. Choudhury, U. Guler, Z. Kudyshev, J. Pekny, S. Pol, H. Reddy, and V. Shalaev. "Thermophotovoltaic system and method of making the same". US20210234498A1. July 29, 2021. URL: https://patents.google.com/patent/US20210234498A1/en.
- [P1] A. Shaltout, S. Choudhury, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev. "System for producing ultra-thin color phase hologram with metasurfaces". US9952557B2. Apr. 24, 2018. URL: https://patents.google.com/patent/US9952557B2/en.

### Preprint / Manuscript Under Preparation

- [X3] M. M. Haque and S. M. Choudhury. "Design of Silicon-Carbide Based Single-Quantum-Well White LED". Under review in *Heliyon*. 2024.
- [X1] S. Sarker and S. M. Choudhury. "Efficiency Enhancement of c-Si/TiO2 Heterojunction Thin Film Solar Cell Using Hybrid Metal-Dielectric Nanostructures". Under review in *Solar Energy*. 2024.

# Membership / Fellowship of Learned Societies, Professional Institutions and Other Noteworthy Affiliations

#### Senior Member, Institute of Electrical and Electronic Engineers (IEEE)

- Secretary, IEEE Bangladesh Section (July 2021 May 2022)
- Chair, IEEE Young Professionals Bangladesh (Mar 2020 Apr 2022)
- Chair, IEEE Graduates of the Last Decade (Jan 2013 Dec 2013)
- Vice -Chair, IEEE Graduates of the Last Decade (Jan 2011 Dec 2012)
- Student Activities Coordinator, IEEE Bangladesh Section (Jan 2011 Dec 2012)
- Chair, IEEE BUET Student Branch (Jan 2008 Aug 2009)
- Treasurer, IEEE BUET Student Branch (Jan 2007 Dec 2008)

#### Member, IEEE Photonics Society

• Vice Chair, IEEE Photonics Society Bangladesh (April 2022 – to date)

• Founding Chair, IEEE Photonics Society Bangladesh (Mar 2021 – Apr 2022)

#### Member, The Optica

- Founding President, Optica Bangladesh Section May 2022 to date
- Founding Moderator, BUET Optical and Photonics Society July 2022 to date
- Treasurer, OSA Purdue Chapter, USA Jun 2016 May 2017

Member, National Young Academy of Bangladesh (NYAB), April 2021 – to date Life Member, American Alumni Association of Bangladesh (AAAB), April 2024 – to date Life Member, Association of BUET Alumni, April 2021 – to date

Student Activities at Purdue University, West Lafayette, IN, USA

- President, Nanotechnology Student Advisory Council (NSAC) (Jun 2017 May 2018)
- Vice-President, Nanotechnology Student Advisory Council (NSAC) (Jun 2016 May 2017)
- Treasurer, SPIE Purdue Chapter, USA (Jun 2015 May 2016)
- President, Bangladesh Students Association (Purdue BDSA), USA (Jul 2017 Jun 2018)
- Treasurer, Bangladesh Students Association (Purdue BDSA), USA (Jul 2015 Jun 2017)

References _		

Available upon request