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ASIF JAHANGIR CHOWDHURY

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INTERESTS:

Analog/Mixed Signal/RF Integrated circuit design, Time-of-Flight Sensor Design, Integrated Circuit Design for wireless and wired Communication system

EDUCATION:

Rensselaer Polytechnic Institute (RPI), Troy, NY, USA. **Fall, '14 - Ongoing**
Ph.D in Electrical Engineering
CGPA: **3.92/4.00**.
Thesis Title: *CMOS Receivers for LiDAR and Time of Flight Sensors*
Advisor: Dr. Mona M. Hella.

Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh. **June, '07 - April, '12**
B.Sc in Electrical & Electronics Engineering
CGPA: **3.89/4.00**.
Thesis Title: *An Efficient Approach to Low-Leakage Power VLSI Design using Variable Body Biasing.*
Advisor: Dr. Md. Shafiqul Islam.

EMPLOYMENT HISTORY:

Software Engineer at Samsung R&D Institute*, Dhaka, Bangladesh*: **July, '12–June'14**
- Application and Test case development for smart phone, smart TV, and smart watch using Android and Tizen
- Two times **Employee of the month** [February 2013 and July 2013]

PROFESSIONAL HISTORY:

Research Assistant at *RPI, Troy, NY*: **Spring, '15 - Summer '17**
- Si Photo-detector design and characterization (I-V, S11, S21, **IBM 0.13 µm**, **AMS 0.35µm CMOS**) (2014-2015)
- Optical Receiver design and characterization for Visible Light Communication (**AMS 0.35µm CMOS**). (2015-2016)
- Low walk-error pulsed based time of flight sensor/Lidar for indoor occupancy detection and gesture recognition. (**AMS 0.35µm CMOS**) (2016-)

Teaching Assistant at *RPI, Troy, NY*: **Fall,'14 - Spring,'15, Fall '17-on going**
- Assisted undergraduate students in -
  - Performing laboratory experiments in **Fields and Waves - I** (2014, 2015, 2017),
  - Solving circuit design problems using MOSFET and BJT in **Introduction to Electronics** (2015), and
  - C programming and hardware debugging in **Laboratory Introduction to Embedded Control (LITEC)** (2014, 2015, 2017).

RELEVANT COURSEWORK:

- **Analog IC Design:** Design techniques of analog circuits; analysis and layout.
- **Advanced Electronic Circuits:** Op-Amp circuits, wideband amplifiers, frequency compensation, noise analysis.
- **Integrated High Speed Communication circuits:** Design and implementation of RF front end circuit modules.
- **Semiconductor Devices and Models-I (SDM-I):** Diode, BJT & MOSFET physical operation and modeling.
- **IC Process & Design:** IC process techniques and design of process steps; used TSUPREM-4 to evaluate the designs.
- **IC Fabrication Laboratory:** Fabricated and characterized Si MOSFET in RPI's clean room; used TSUPREM-4 to evaluate the designs.

ACADEMIC PROJECTS:

- Design of a Track-and-Hold Amplifier based on Integrated OP-AMPS and Analog Switches using ADIsimPE Simulator.
- Phased Locked Loop (PLL) design in **130 nm CMOS** – worked on high speed clock divider, phase frequency detector, charge pump and wide tuning range Voltage Controlled Oscillator (VCO)
- Operational Trans-Conductance Amplifier (OTA) design in **130 nm CMOS** for a Gain-of-1 Sample and Hold Circuit

AWARDS:

- Winner of the first prize in Analog Device Inc. Design contest in **ECSE 6050 Advanced Electric Circuits** course. Design of a Track-And Hold Amplifier based on **Integrated OP-AMPS** and Analog Switches with less than 0.5 μS acquisition time and high accuracy (2015)
- **Winner** in LESA (Center for Light Enabled Systems and Application) Industry Academia day perfect pitch competition (2017)
- 2 times SRBD **Employee of the Month** for February, 2013 and July 2013

SKILLS:

- **Programming and software:** MEDICI, TCAD Sentaurus, Cadence, ADS, C++, MATLAB, LATEX, PCB Design, Android Application Development, Tizen Application Development, Linux etc.
- **Hardware:** Network Analyzer, Spectrum Analyzer, BER tester, Digital Communication Analyzer, Pico-ammeter, Optical power meter, Oscilloscope, Wafer Probing, PCB Soldering etc.

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PUBLICATIONS:

JOURNAL:

- B. Fahs; **A. Chowdhury**; Y. Zhang; J. Ghasemi; C. Hitchcock; P. Zarkesh-Ha; M. M. Hella, "Design and Modeling of Blue-Enhanced and Bandwidth-Extended PN Photodiode in Standard CMOS Technology," in *IEEE Transactions on Electron Devices* , vol.PP, no.99, pp.1-8 , July 2017, doi: 10.1109/TED.2017.2700389

- B. Fahs, J. Chellis, M. J. Senneca, **A. Chowdhury**, S. Ray, A. Mirvakili, B. Mazzara, Y. Zhang, J. Ghasemi, Y. Miao, P. Zarkesh-Ha, V. J. Koomson and M. M. Hella, "A 6-m OOK VLC Link Using CMOS-Compatible p-n Photodiode and Red LED," in IEEE Photonics Technology Letters, vol. 28, no. 24, pp. 2846-2849, Dec.15, 15 2016. doi: 10.1109/LPT.2016.2623558

- B. Fahs, **A. Chowdhury**, M. Hella, "A 12-m 2.5-Gb/s Lighting Compatible Integrated Receiver for OOK Visible Light Communication Links," in Journal of Lightwave Technology, vol.PP, no.99, pp.1-1**,** August 2016 doi-10.1109/JLT.2016.2587598

CONFERRENCE:

- S. Ray, **A. Chowdhury** and M. M. Hella, "Enhancing the Stability of Broadband Amplifiers Using Third Order Nested Feedback," 2018 IEEE International Symposium on Circuits and Systems (ISCAS), Florence, Italy, 2018, pp. 1-4.

- B. Fahs, **A. Chowdhury**, J. Ghasemi, P. Zarkesh-Ha and M. Hella, "A robust 2×2 CMOS receiver array for meter-scale point-to-point OOK VLC links," *2017 IEEE 60th International Midwest Symposium on Circuits and Systems (MWSCAS)*, Boston, MA, 2017, pp. 663-666.

- S. Nezhadbadeh, J. Ghasemi, A. Neumann, **A. Chowdhury**, B. Fahs, M. Hella, Steven R. J. Brueck, and Payman Zarkesh-Ha, "Characterization and Optimization of Blue-Enhanced Honeycomb Optical Sensor", in *SENSORS, 2017 IEEE*, 2017, pp. 1–3.

- B. Fahs, **A. Chowdhury**, Y. Zhang, J. Ghasemi, C. Hitchcock, Payman Zarkesh-Ha and M. Hella, "Blue-enhanced and bandwidth-extended photodiode in standard 0.35-pm CMOS," in SENSORS, 2016 IEEE, 2016, pp. 1–3. doi: 10.1109/ICSENS.2016.7808485

- B. Fahs, **A. Chowdhury** and M. M. Hella, "A digitally tunable stabilization technique for transimpedance amplifiers in optical wireless and visible light communication links," 2016 14th IEEE International New Circuits and Systems Conference (NEWCAS), Vancouver, BC, Canada, 2016, pp. 1-4 doi: 10.1109/NEWCAS.2016.7604743

- B. Fahs, **A. Chowdhury** and M. M. Hella, "A 1.8 Gb/s fully integrated optical receiver for OOK visible light communication in 0.35 μm CMOS," 2016 IEEE International Symposium on Circuits and Systems (ISCAS), Montreal, QC, 2016, pp. 934-937 doi: 10.1109/ISCAS.2016.7527395

- J. Ghasemi, **A. Chowdhury**, A. Neumann, B. Fahs, M. Hella, Steven R. J. Brueck, and Payman Zarkesh-Ha, "A Novel Blue-Enhanced Photodetector using Honeycomb Structure" IEEE Sensors, 2015, vol., no., pp.1-3, 1-4 Nov. 2015 doi: 10.1109/ICSENS.2015.7370557

- **A. Chowdhury**, M. S. Rizwan, S. J. Nibir and M. R. A. Siddique, "A new leakage reduction method for ultra low power VLSI design for portable devices," Power, Control and Embedded Systems (ICPCES), 2012 2nd International Conference on, Allahabad, 2012, pp. 1-4 doi: 10.1109/ICPCES.2012.6508074

- **A. Chowdhury**, M.S. Rizwan, M.S. Islam, "An Efficient Approach to Low-Leakage Power VLSI Design using Variable Body Biasing." International Conference on Electrical, Computer, Electronics and Communication Engineering (ICECECE), Venice, Italy, issue 64, pp. 263-267, 11-13 Apr. 2012.