Arian NOWBAHARI

Electronic Engineer | Ph.D. | Sony Corporation

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EMPLOYMENT

Nov'23 - Present	**Application Engineer** at Sony Semiconductor Solutions, Automotive Business Division.
Feb'23 - Oct'23	**Researcher** at Vestfold Innovation Center, Department of Microsystems, University of South-Eastern Norway.
Oct'22 - Dec'22	**Visiting Researcher** at Department of Mechanical, Aerospace, and Nuclear Engineering at Rensselaer Polytechnic Institute, NY, USA.

EDUCATION

June 2023 – November 2019 | **Ph.D. | Micro- and NanoSystems, IMS, University of South-Eastern Norway**
- Thesis : Low Power Circuits and Architectures for Wireless Sensor Networks

October 2019 – September 2017 | **MSc | Electronic Engineering, DET, Polytechnic University of Turin, Italy**
- Thesis : Design of a Low Cost Single Gate Planar Junctionless Transistor over FD-SOI Wafer
- Final Mark : 110/110 (GPA 4.0)

July 2017 – September 2014 | **BSc | Electronic Engineering, DET, Polytechnic University of Turin, Italy**

PUBLICATIONS

Journal

- **A. Nowbahari**, A. Roy and L. Marchetti. "**Low Power Wake-Up Receivers for Underwater Acoustic Wireless Sensor Networks**" in IEEE Transactions on Green Communications and Networking, doi : 10.1109/TGCN.2023.3279627.
- **A. Nowbahari**, L. Marchetti, and M. Azadmehr, "**Subthreshold Modeling of a Tunable CMOS Schmitt Trigger**," IEEE Access, February 2023. doi : 10.1109/ACCESS.2023.3241492
- **A. Nowbahari**, A. Roy and L. Marchetti. "**Junctionless transistors : State-of-the-art**". Electronics. 2020; 9(7):1174. doi:10.3390/electronics9071174
- **A. Nowbahari**, A. Roy, M. Nadeem Akram, and L. Marchetti. "**Analysis of an Approximated Model for the Depletion Region Width of Planar Junctionless Transistors**" Electronics. 2019; 8(12):1436. 10.3390/electronics8121436
- **A. Nowbahari**, L. Marchetti, and M. Azadmehr, "**Analysis of a Low Power Inverting CMOS Schmitt Trigger Operating in Weak Inversion**," International Journal of Electrical and Electronic Engineering & Telecommunications, Vol. 11, No. 6, pp. 392-397, November 2022. doi : 10.18178/ijeetc.11.6.392-397

Conference

- **A. Nowbahari**, L. Marchetti and M. Azadmehr, "**A Delay-Based Wake-Up Receiver for Wireless Sensor Networks**," 2021 International Conference on Electrical, Communication, and Computer Engineering (ICECCE), 2021, pp. 1-5, doi:10.1109/ICECCE52056.2021.9514246.
- **A. Nowbahari**, L. Marchetti and M. Azadmehr, "**An Ultra Low Power Multivibrator Based Wake up Receiver for Wireless Sensor Networks**," 2021 IEEE 7th World Forum on Internet of Things (WF IoT), 2021, pp. 380 384, doi:10.1109/WF IoT51360.2021.9595159.
- **A. Nowbahari**, L. Marchetti and M. Azadmehr, "**An Oscillator Based Wake Up Receiver for Wireless Sensor Networks**," 2021 IEEE Sensors Applications Symposium (SAS), 2021, pp. 1 5, doi:10.1109/SAS51076.2021.9530093.
- **A. Nowbahari**, L. Marchetti and M. Azadmehr, "**Nano Power Monostable Based Wake Up Mechanism for Wireless Sensor Networks**," 2022 11th International Conference on Communications, Circuits and Systems (ICCCAS), 2022, pp. 187-191, doi : 10.1109/ICCCAS55266.2022.9825344
- **A. Nowbahari**, L. Marchetti and M. Azadmehr, "**Weak Inversion Model of an Inverting CMOS Schmitt Trigger**," 2022 11th International Conference on Communications, Circuits and Systems (ICCCAS), 2022, pp. 1-5, doi : 10.1109/ICCCAS55266.2022.9824290

Engineering Skills

Software	**Integrated Circuits Design** - Cadence Virtuoso (Schematic, Parasitic Extraction, Post-Layout), **Multiphysics Simulations** - COMSOL (Semiconductor Module), **Electronic Circuit Simulation** - LTspice, **PCB Design**, **Programming Languages** - Python, C, Matlab, Assembly, *VHDL*
Hardware	**ASIC** (TSMC, AMS), **FPGA** (Altera), **µC** (Arduino)
Laboratory	**Electronic Equipment** (e.g. Oscilloscope & Network Analyzer), **Clean Room** (basic training), **Energy Harvesting Technologies** (Piezoelectric, Thermoelectric, Photovoltaic & RF)

Research Projects

2023 | **R&D Consultant, IMS, Vestfold Innovation Center, Norway**
Energy Harvesting (EH) Technologies for IoT Nodes : Screening and selection of State-of-the-Art solutions. Experimental validation of photovoltaic, thermoelectric, and RF EH systems.

2022 | **Hardware Engineer, MANE, Rensselaer Polytechnic Institute, NY, USA**
Electrostatic Energy Harvesting : Analysis and experimental validation of State-of-the-Art electrostatic MEMS energy converters.

2023
2019 | **IC Designer, IMS, University of South-Eastern Norway, Norway**
Low Power Circuits and Architectures for Wireless Sensor Networks : ASIC design of State-of-the-Art Wake-Up Receivers and Subthreshold Modeling of CMOS Schmitt Triggers.

2019
2018 | **Device Modeling, DET, Polytechnic University of Turin, Italy**
Workshop Innovative System : Equivalent Circuit Modeling of a Spin-Transfer-Torque-Magnetoresistive-RAM (STT-MRAM) for Binary Neural Networks.

2018
2017 | **Hardware Developer, DET, Polytechnic University of Turin, Italy**
Ambient Intelligence Project : Design of an *intelligent* dispenser for campus dormitories. µC programming and signal conditioning circuit design (heat sensors, ultrasound sensors, and servomotors).

2016
2015 | **Hardware Developer, DIMEAS, Polytechnic University of Turin, Italy**
H_2O : PCB design (schematic and layout) of a sensor board for hydrogen fuel cell car. Signal conditioning circuit design (temperature, speed, and humidity sensors). Components soldering.

Certifications

2020 **Quantus Transistor-Level T1 : Overview and Technology Setup v19.1 Exam**, issued by Cadence Design Systems
Quantus Transistor-Level T2 : Parasitic Extraction v19.1 Exam, issued by Cadence Design Systems
Physical Verification System v16.1 Exam, issued by Cadence Design Systems

$ Grants

2021 **HiSilicon Sponsorship Program for MPW Prototyping (IMEC)** : 6000€ grant sponsored by HiSilicon and IMEC to fabricate an ASIC in AMS 0.35µ CMOS process through EUROPRACTICE.

Peer Review Experience

2021-2023 American Institute of Physics Advances (AIP) : 1 Journal Article
IEEE Sensors Applications Symposium (SAS) : 9 conference papers.
IEEE Access : 2 journal articles.
Journal of Applied Research and Technology : 1 journal article.
Recent Advances in Electrical & Electronic Engineering : 2 journal articles.
Facta Universitatis-Series Electronics and Energetics : 2 journal articles.
International Conference on Energy Engineering and Environmental Protection : 1 conference paper.

Master Project Supervision

July 2023 | **MSc Thesis Co-supervisor, IMS, University of South-Eastern Norway**
January 2023 | › Thesis : *Design of a Low Noise Amplifier for Medical Applications*
June 2022 | **MSc Thesis Co-supervisor, IMS, University of South-Eastern Norway**
November 2021 | › Thesis : *Design of a Parabolic Reflector for Underwater Acoustic Applications*

Honors

2022 **Certificate of Excellent Oral Presentation** issued by the ICCCAS 22 Conference Technical Commitee for presenting the following article : *A. Nowbahari, L. Marchetti and M.Azadmehr, "A Nano-Power Monostable-Based Wake-Up Mechanism for Wireless Sensor Networks*" at the 11th International Conference on Communications, Circuits and Systems (ICCCAS), Singapore, May 13-15, 2022.

Volunteering

2019 **Charity Painting Solo Exhibition** : 20 canvas from my collection "Chromatism from the Abyss" have been exposed at the Archaeological Museum of Olbia, Italy. All the raised funds (~1k$) were donated to *Cooperativa Sociale Villa Chiara*, a social cooperative committed to helping people with disabilities.

Languages

Italian ●●●●●
English ●●●●●
Persian ●●●●○
Norwegian ●●○○○

Forces

- Pragmatic
- Autonomous
- Cooperative