Arman Petrosyants

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Education

Bauman Moscow State Technical University — Moscow, Russia
M.Eng. in Biomedical Engineering and Medical Instrumentation — *Sep 2018 – Aug 2020*
— Graduated with Honors, 4.8 GPA (max 5.0).

Bauman Moscow State Technical University — Moscow, Russia
B.Eng. in Medical Instrumentation Tech — *Sep 2014 – Aug 2018*
— Graduated with Honors, 4.8 GPA (max 5.0).
— Acquired three academic awards throughout the University studies

Work Experience

Research & Development Engineer — Moscow, Russia
Tsuru Robotics — *Jun 2020 – Present*
Developed real-time UWB-based Positioning System:
— Developed architecture capable of positioning an infinite amount of devices in the scope of one system.
— Implemented data analysis pipeline in MATLAB for system refinement.
—— Mitigated positioning error from over 5m to sub-30cm precision of detection.
Participated in the Drone Show preparation:
— Assembled, tested and deployed 3 power supplies for LED arrays and arrays themselves.
— Assisted in MoCap-based system development of tracking the correctness of an aim in the shooting range.
—— The main assumption: an aim has external coordinates (A-GPS), the gun has only MoCap-based coordinates.

Embedded Systems Intern — *Mar 2020 – Jun 2020*
Developed real-time (100 us) Time-of-Arrival based Positioning system with Cortex-M4 chip:
— Coded Firmware with C language to enable the system.
— UART/Segger RTT for debugging and logging.
Researched said Positioning system's parameters and error margins.
— MATLAB as a main tool of gathered data analysis.

Sales and Technical Marketing Intern — Moscow, Russia
GE Healthcare, MRI dep-t — *Jan 2019 – Dec 2019*
Adapted from English to Russian MRI technical documentation for regulatory and utility purposes.
Adapted marketing materials (with verification of legal and compliance).
Participated in MRI equipment certification and registration:
— Preparation of technical documentation and regulatory certificate drafts.
Arranged the supply chain of MRI user manuals to terminal users.
Arranged 15 separate events with Key Opinion Leader radiologists' participation.

Bauman MSTU, Biomed Engineering dep-t, Imedance Measurements Lab — Moscow, Russia
Research Assistant — *Nov 2018 – May 2020*
Thesis: *An Electrical Impedance Tomography System*:
— Researched image reconstruction algorithms for an EIT system.
— Applied image reconstruction algorithms for a non-full circle electrode array.
— Developed MATLAB code to implement several reconstruction algorithms.
— Developed *in silico* data generation pipeline for hypotheses verification.
—— COMSOL Multiphysics for data generation.
—— Autodesk Inventor for geometrical model generation and parametrization.

Research & Development Intern — Moscow, Russia
Huawei Labs, Sensors & Algorithms Team — *Jul 2018 – Sep 2018*
Researched ways to get SpO2 data with Red, Green and IR spectrum PPG.
Developed MATLAB data processing pipeline for PPG biological signal.
Developed real-time Heart-Rate detection algorithm based on the PPG data.
Adjusted system behaviour to be compatible with sub-200 ms reaction time.

Tools used to achieve up-mentioned:
— Raspberry Pi3 + Raspbian as a host system

— C + Linux Terminal for firmware development and data gathering
— MATLAB for data analysis

Bauman MSTU, Biomed Engineering dep-t, Robotic Rehab Lab Moscow, Russia
Research Assistant *Aug 2016 – May 2018*

Thesis: *Electromyography and Kinematic Sensor-based Arm Prosthesis*:
— Researched the optimal EMG channels number for prosthetic arm control.
— Researched the optimal refresh rate of gyroscopes and accelerometers for prosthetic arm control.
— Formulated general theoretical outlines for arm prosthetic development.
— Developed clinical-grade EMG biosensor with built-in (hardware) envelope of the said signal.
—— Altium Designer for PCB development.
—— Proteus and MicroCap for schematic behaviour analysis and refinement.
— Developed a close-loop tactile feedback system:
—— with haptic motors;
—— with Ni-Cu alloy based resistance-pressure sensor.

Embedded Systems Intern Moscow, Russia
Motorica *Oct 2016 – Jan 2018*

Educated superior engineering staff on:
— Physiological bases of muscle contraction,
— Body-sensor interactions,
— General medical equipment design guidelines.
Participated in iEMG sensor development.
Developed Bluetooth-controlled (with Arduino support) demo-purpose forearm prosthetic.
— Took part in development of motors' control system.

Academic Awars

Academic Council Scholarship	Outstanding Academic and Research Performance	*Jan 2018 – Aug 2018*
Russian President Scholarship	Research Performace	*Jan 2017 – Jan 2018*
Russian Gov-t's Scholarship	Extracurricular Scholar Performance	*Sep 2016 – Sep 2017*

Publications and Conference Patricipations

A. Petrosyants, A. Volkov, A. Nikolaev. *Electrical Impedance Tomography Data Acquisition Emulation.* | *Conf P*
Ural Symposium on Biomedical Engineering, Radioelectronics and Information Technology (USBEREIT), Yekaterinburg, Russia, 2020, pp. 44-47. doi: 10.1109/USBEREIT48449.2020.9117667

Yu. Ershov, V. Akopyan, S. Alkov, **A. Petrosyants**. *Theoretical Bases of Ultrasonic Phaco-Operation.* | *J Publ*
J Tech Living Sys, Tome 14, No.1 2017. pp. 36-39. ISSN: 2070-0997

A. Petrosyants, V. Akopyan *et al. A Model of Ultrasound Phacodispersion of an Eye Lens.* | *Conf P*
Mathematics. Computing. Education. MCE-2017. Pushchino, Russia, Jan 23-28 2017

V. Akopyan, M. Bambura, **A. Petrosyants**, S. Alkov, Yu. Ershov. *An Ultrasonic Injection Device.* | *Conf P*
MedTech-2016. Moscow, Russia @ BMSTU, Nov 22-23 2016

Technical Skills & Literacy

Electrosphysiology	Processes Modelling	Low-Noise Amps	Embedded C	Lab Reports Prep
iEMG / sEMG	COMSOL	PCB Design	I2C/UART	MS Word
EIT / ICG	Python	MicroCap	Firmware	LaTeX
MATLAB	git	Proteus	nRF52	