



EDUCATION

- 2016-2018 **Master of Science**
GPA: 3.9/4.0
Biomedical Engineering
Worcester Polytechnic Institute
- 2011 – 2015 **Bachelor of Science**
GPA: 4.8/5.0
Biotechnical Systems and Technologies
Tomsk Polytechnic University

RESEARCH EXPERIENCE

JAN 2017 – AUG 2018
Worcester Polytechnic Institute, Worcester, MA, USA
Master's thesis

Designed, prototyped, and tested a three-axis force measurement device for the da Vinci surgical system to provide haptic feedback to the operator based on forces applied to the instruments. Designed electronics and analog control circuits. Developed a ROS package to interface with the da Vinci Research Kit.

AUG 2014 – DEC 2016
Tomsk Polytechnic University, Tomsk, Russian Federation
Bachelor's thesis

Designed and developed electronic circuits of a device for determining the location of hematomas using infrared spectroscopy. Programmed microcontroller STM32 in C for device control. Created a program for data analysis and acquisition using LabVIEW. Implemented RS232 serial communications between PC and developed device.

PROFESSIONAL EXPERIENCE

CURRENT, FROM SEPT 2018 (FT)
NTO IRE Polus, Fryazino, Russian Federation
Engineer

Designed and implemented the full-scale manufacturing process for a new medical laser treatment product. Responsible for component quality assurance, inventory database development, and design of assembly line process equipment.

SUMMER 2017, 2018 (FT)
IPG Medical, Marlborough, MA, USA
Internship

Research, development, and testing of new medical laser system for dermatology. Conducted laser-tissue interaction experiments with biological tissue samples and phantoms.

SUMMER 2014 (PT)
Medtekhnika, Ulan-Ude, Russian Federation
Internship

Assisted in technical support and repair of medical equipment in hospitals and clinics.

AWARDS

- 2016 - 2018 Fulbright Scholarship
- 2015 1st team place in All-Russian Student Competition on Electronics
- 2015 Certificate of research achievements
- 2014 1st team place in the regional stage in All-Russian Student Competition on Electronics

PRESENTATIONS

- IV International Forum for Young Scientists "Space Engineering" (2016)
- II International Scientific Conference Foreign Languages in the Context of the Professional Communication Problems (2016)
- XXI International Scientific Conference (STT 2015) for students and scientists "Modern Equipment and Technologies" (2015)

SKILLS

Programming Languages

C • Matlab • Python • ROS • L^AT_EX • Visual Basic • C#

Software

Altium Designer • SolidWorks • MathCAD • LabVIEW
IAR Embedded Workbench • Keil MDK

Additional Skills

- Circuit board and PCB soldering
- Electronic circuit design
- Mechanical parts design
- Programming of microcontrollers

REFERENCES

Dr. Gregory S. Fischer

POSITION Professor
EMPLOYER Department of Mechanical Engineering
Worcester Polytechnic Institute

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POSITION Manager of Advanced Product Development
EMPLOYER IPG Medical

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PHONE +1 (508) 373-1100 (Work)

PUBLICATIONS

Novoseltseva A. (2018). "Force Feedback for the Patient Side Manipulator of the daVinci Research Kit", *Masters Theses (All Theses, All Years)*, <https://digitalcommons.wpi.edu/etd-theses/312>

Yaroslavsky I., Vinnichenko V., McNeill T., **Novoseltseva A.**, Perchuk I., Vybornov A., Altshuler G., Gapontsev V. (2018). "Optimization of a novel Tm fiber laser lithotripter in terms of stone ablation efficiency and retropulsion reduction" *Proc. SPIE 10468, Therapeutics and Diagnostics in Urology 2018*, 104680H doi: 10.1117/12.2291089;

Erakhtin I., Aristov A., **Novoseltseva A.**, Sukhanov V. (2017). "Design of optoelectronic system for optical diffusion tomography" *V International Forum for Young Scientists "Space Engineering"*, DOI: 10.1051;

Novoseltseva A., Aristov A., Timchenko K. (2016). Experimental Facility Control System for Optical Studies in the Frame of Problem Solving of Brain Hematoma Diagnostics, *IOP Conference Series: Materials Science and Engineering*, Vol 93, No 012002, pp 1-5.

Novoseltseva A., Musorov I., Torgaev S., Aristov A., (2016). The Control System of the Optoelectronic Sensor, *IV International Forum for Young Scientists "Space Engineering"*, pp 262-265.

Aristov A., Timchenko K., **Novoseltseva A.**, Kustov D., Larioshina I., (2016). Designing of Phantom Head Used in Optical Diagnostics of Brain Injury, *Journal of Physics: Conference Series*, Vol 671, No 012002, pp 1-5.

Timchenko K., **Novoseltseva A.**, Aristov A., (2016). Research of the Methods for Reading Optical Density on Different Parts of Human Head, *IV International Forum for Young Scientists "Space Engineering"*, pp 272-277

Timchenko K., **Novoseltseva A.**, Aristov A. (2015). Designing of Phantom Head for Conducting Optical Researches, *Atomic and molecular pulsed lasers : The 12th International Conference*, pp 132