# Anna Novoseltseva

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## 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 STM32 microcontroller 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 commercial-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-place team in All-Russian Student Competition on Electronics

2015 Certificate of research achievements
*Tomsk Polytechnic University*

2014 1st-place team 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 • LaTeX • Visual Basic • C#

*Software*

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

*Additional Skills*

- Circuit board and PCB soldering
- Electronic circuit design
- Machine component design
- Programming of microcontrollers

## REFERENCES

**Dr. Gregory S. Fischer**

POSITION Professor
EMPLOYER Department of Mechanical Engineering
*Worcester Polytechnic Institute*

EMAIL gfischer@wpi.edu
PHONE +1 (508) 831-5261 (Work)

**Dr. Ilya Yaroslavsky**

POSITION Manager of Advanced Product Development
EMPLOYER IPG Medical

EMAIL iyaroslavsky@ipgphotonics.com
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)*, 312, 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 Opotoelectronic 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