Vera Smirnova

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Education

Columbia University — *New York, NY*
Master of Science in Chemical Engineering — GPA: 3.50 — Sep. 2017 – Dec. 2018 (Expected)
- Coursework: Statistical Mechanics, Solar Fuels, Mathematical Methods and Intellectual Property.

University of California, San Diego — *San Diego, CA*
Bachelor of Science in Chemical Engineering — GPA: 3.46 — Sep. 2013 - Jun. 2017
- Minors in Mathematics and History.
- Coursework: Process Modelling, Dynamics, Control, Fluid Mechanics, Heat and Mass Transfer, Renewable Energy and Environment.

Professional Experience

Solar Fuels Laboratory, Columbia University — *New York, NY*
Graduate Researcher — Sep. 2017 - Present
- Fabricating ultramicroelectrodes (UMEs) to be used in the point probe scanning electrochemical microscopy (SECM).
- Developing novel continuous line probes to be used for the analysis of the photocatalytic surfaces.

RETech Engineering, Inc. — *San Diego, CA*
Student Intern — Jan 2017 – Jun. 2017
- Collaborated with RETech Engineering during senior design to develop a low-cost power boosting system for solar panels.
- Designed a cooling system at the back of the solar panels, modeled in Aspen Plus based on the Organic Rankine Cycle.
- Completed an economic analysis to find optimal materials, reduce the costs and increase the overall efficiency.

Stable Isotope Lab, UC San Diego — *San Diego, CA*
Research Assistant — Mar. 2015 - Jun. 2017
- Performed photolysis experiments in the presence of ozone to study exchange of oxygen isotopes.
- Examined obtained samples of oxygen and carbon dioxide using techniques of mass spectrometry and gas chromatography.
- Organized and analyzed the collected data, to find trends and reactions pathways, presented results at the poster competition.

Project Experience

ChemE Car Project — *San Diego, CA*
President (2016-2017) & Member (2014-2016) — Nov. 2014 - Jun. 2017
- Lead a group of 40 students to design model-sized cars propelled and stopped using chemical reactions.
- Maximized the performance of the batteries and cells by preventing voltage drops, and optimizing the design.
- Achieved 3rd place in 2015 and 4th place in 2017 Western Regional ChemE Car Competition.

Campus Renewable Energy AIChE Project — *San Diego, CA*
Research & Development Engineer — May. 2016 - Jun. 2017
- Designed, assembled and tested innovative solar powered umbrella capable of charging portable devices.
- Collaborated with facility management to obtain permits for implementation of the project.
- Developed and successful installed the first prototype of solar powered umbrella on UC San Diego Campus.

Global Teams in Engineering, Fiji Kindergarten Project — *San Diego, CA*
Prototype Team Lead — Sep. 2014 - Jun. 2015
- Managed a team of 4 students to design and build a prototype of the roof water collection system.
- Presented the design to the non-profit client and used feedback and insights to improve it.

Leadership Experience

Department Representative | Engineering Graduate Student Council — Columbia University | Sep. 2017 – Present
President | ChemE Car Project — UC San Diego | Nov. 2014 – Jun. 2017
Conference Chair | American Institute of Chemical Engineers (AIChE) — UC San Diego | Sep. 2013 –Jun. 2017
Professional Development Lead | Triton Engineering Student Council — UC San Diego | Jun. 2016 – Dec. 2016

Skills & Languages

Programming: Matlab, Labview, Aspen, Latex, Excel(VBA). Beginner: SQL and Python.
Research: gravimetric and volumetric analysis, spectrophotometry, data analysis, and safety procedures.
Languages: fluent in Russian and Spanish, beginner in German.