Ekaterina (Katya) Rakhmatulina

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Civil and Environmental Engineering
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Key Topics   wildfires, ecohydrology, snowpack, climate change, Sierra Nevada, hydrological modeling, fieldwork, sensors/remote sensing

Education

University of California, Berkeley
Ph.D Candidate, Civil Engineering, 2017-Current
Field: Ecohydrology

University of California, Berkeley
M.S., Civil Engineering, 2017.
Field: Civil Systems

University of Michigan, Ann Arbor
B.S., Civil Engineering, 2016.
B.S., Environmental Engineering, 2016.
Program in Sustainable Engineering
Graham Sustainability Scholars Program

Research

Civil Engineering, UC Berkeley
Graduate Student Researcher, PhD, 2017-Current
Project: Fire Effects on Ecohydrology in the Sierra Nevada Watersheds
Description: Using fieldwork, laboratory experiments, and modeling to understand feedbacks between wildfires, hydrology, and ecology, within the context of changing climate, on ecosystem function of the Sierra Nevada watersheds. Research findings will aide management decisions with the goal of minimizing catastrophic fires, promoting landscape diversity, and increasing water yield.

Civil Engineering, UC Berkeley
Graduate Student Researcher, MS, 2016-2017
Project: Internet of Water
Description: Installed and operated wireless sensor netweorks (WSNs) in the Sierra Nevada montane watersheds to accurately monitor snowpack in real time. WSNs allow investigation of the effects of local-scale phenomena on large-scale mountain hydrology.

Civil Engineering, University of Michigan
Undergraduate Student Researcher, 2013-2016
Project: Real-Time Integrated Basin Simulator (tRIBS)

Description: Contributed to an ecohydrological model by delineating Cumberland River flood of 2010 through modeling the bathymetry of the river using ArcGIS platform. My contribution helped to accurately predict inundation in complex environments.

Civil Engineering, University of Michigan
Undergraduate Student Researcher, 2015-2016
Project: Mapping Boreal Forest Cover Change
Description: Integrated field collected data into GIS maps to monitor change in forest cover in arctic regions at a scale of an individual tree. My contribution helped quintify the effects of climate change.

Civil Engineering, University of Michigan
Undergraduate Student Researcher, 2014-2016
Project: Autonomous Water Quality Sampling
Description: Worked on an autonomous boat to adaptively sample dissolved oxygen concentrations across large bodies of water. Helped developed interface for the boat location and controls using JavaScript and Python. Developed water perimeter maps using ArcGIS to be remotely communicated to the boat via server.

Teaching

Civil Engineering, UC Berkeley
Graduate Student Instructor, E7: Intro to Computer Programming for Scientists and Engineers, Spring 2017

Civil Engineering, University of Michigan
Teacher Assistant, CEE 421: Hydrology and Floodplain Hydraulics, Spring 2016
Teacher Assistant, CEE 212: Solid and Structural Mechanics, Spring 2014

Skills

Programming Languages: Python, R, Matlab, C
Remote Sensing Applications: ArcGIS, QGIS, GRASS GIS, ENVI, Google Earth Engine
Hydrological Models: RHESSys, MODFLOW, HEC-RAS, SWMM
Presentation: Photoshop, Illustrator, InDesign, PowerPoint

Workshops

CUAHSI Master Class: Advanced Techniques in Watershed Science (2019)
Fire Behavior and Fuels Conference: Soil Moisture and Wildfire Prediction (2019)

In the News

A Trailblazing Plan to Fight California Wildfires, August 2019, New Yorker
Fire and Water, November 2018, UC Berkeley Engineering Magazine

Memberships

International Association of Wildland Fire, American Geophysical Union

Languages

English, Russian (fluent)

References

Sally Thompson
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University of Michigan, Civil and Environmental Engineering
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