GREGORY J. BRUNNER

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PROFILE

Mr. Brunner is an experienced scientist, programmer, and professor with a demonstrated history of solving problems involving big data, geographic data, and imagery. He is an expert in the fields of geographic information systems (GIS), geospatial application development, remote sensing, big data analytics, Python, and ArcGIS. He is an excellent teacher who has taught undergraduate and graduate level geospatial programming courses at Saint Louis University. He is an intelligent and passionate research professional with a Master of Science (MS) in Physics from Rice University. He has given presentations across the world on topics ranging from green infrastructure to augmented reality.

EXPERIENCE

Senior Scientist — Esri, St. Charles, MO — April 2016 – Present

Currently serves as the lead on multiple projects within Esri (http://www.esri.com). Lead developer on an effort to develop data quality and data comparison algorithms. Lead scientist on an effort to implement large scale raster processing and machine learning algorithms using Amazon Web Services and ArcGIS Image Server. Lead developer for the Esri Python raster function development effort (https://github.com/Esri/raster-functions/). Presented at numerous conferences, including but not limited to Esri's Federal GIS Conference, Esri's Developer Summit, and Domino Data Lab's Data Science Pop-up.

Imagery Scientist — Esri, St. Charles, MO — July 2011 – Apr 2016

Led effort to develop a framework to evaluate large amounts of geographic content. Developed Python tools to automate content assessment. Developed imagery processing pipeline that extracted 3D point clouds from oblique aerial photos. Presented at numerous conferences on topics including but not limited to 3D augmented reality, imagery analysis, and geographic data quality.

Adjunct Professor — Saint Louis University, St. Louis, MO — Jan 2017 – Present

Teaches GIS 4090/5090 - *Introduction to Programming for GIS and Remote Sensing* and GIS 4091/5091 - *Advanced Programming for GIS*. GIS 4090/5090 introduces students to Python programming and its applications to remote sensing and GIS. Through completing this course, students are able to use Python to perform common GIS and remote sensing analysis tasks, automate workflows, and develop custom Python tools. In GIS 4091/5091, students learn how to publish, consume, and analyze web services using Python, Javascript, and HTML. They are introduced to powerful, advanced Python libraries such as Pandas, Numpy, ArcGIS, and Folium in addition to learning advanced geographic data visualization techniques that leverage Python, Javascript, and web APIs. They also learn how to use Javascript to create their first stand-alone web applications.

GeoSLU Advisory Board — Saint Louis University, St. Louis, MO — Aug 2018 – Present

Currently serving on the advisory board for the GeoSLU Big Idea, an initiative to enhance geospatial research, training, and innovation at Saint Louis University.

Associate Scientist Sensing Strategies, Inc. Mar 2008 – July 2011
Pennington, NJ

Developed algorithms for the analysis of space-based and ground-based sensor data in MATLAB. Implemented algorithms in data analysis software written in C++. Designed user interface for viewing sensor data. Implemented geographic information system software TatukGIS and Google Maps in graphical user interface for analyzing sensor data. Performed analysis on LiDAR sensor data. Constructed images from sensor data. Calibrated sensors in laboratory. Participated in field tests of remote sensing equipment.

Graduate Student Researcher Rice University June 2005 – Mar 2008
Houston, TX

Completed multiple astronomy research projects in collaboration with scientists across the world that led to publications and conference presentations. Developed computational algorithms to analyze large volumes of spectral data. Composed a research grant and received approval from Spitzer Science Center and the NASA Jet Propulsion Lab.

Visiting Research Fellow Spitzer Science Center, Caltech Aug 2006 – Feb 2007
Pasadena, CA

Worked with *Spitzer Space Telescope* Infrared Spectrograph instrument team to develop data reduction pipeline that decomposes spectroscopic data cubes into maps. Wrote paper summarizing our analysis of spectra from nearby galaxies.

EDUCATION

Rice University, Houston, TX
M.S., Physics, 2008

Johns Hopkins University, Baltimore, MD
B.S., Physics, 2005
Minor in Earth and Planetary Science

HONORS AND AWARDS

2019 Excellence in Adjunct Teaching Award from Saint Louis University
Certificate of Appreciation from the National Geospatial-Intelligence Agency's Geosaptial Analyst Hub (GA Hub) for *Capturing and Sharing Technical How − To*, June 2018
Certificate of Appreciation from the National Geospatial-Intelligence Agency's Geosaptial Analyst Hub (GA Hub) for *Excellence in Using Statistics in Python*, July 2017
Certificate of Appreciation from the National Geospatial-Intelligence Agency's Geosaptial Analyst Hub (GA Hub) for *Python Party Presenting − Sharing Scripting Expertise with Others in an Engaging Manner*, June 2016
Spitzer Visiting Graduate Student Fellow, Spitzer Science Center, 2006–2007
NASA Undergraduate Student Research Program Fellow, NASA Jet Propulsion Lab, Summer 2004
Caltech Summer Undergraduate Research Fellow, California Institute of Technology, Summer 2004

PROFESSIONAL AFFILIATIONS

The American Society for Photogrammetry and Remote Sensing, ASPRS (2011 - 2018)
Association for Unmanned Vehicle Systems International, AUVSI (2014 - 2016)
ASPRS Heartland Region Director (2015 - 2016)
ASPRS Heartland Region President (2013 - 2014)
The American Astronomical Society (2006 - 2011)