fbb, Ph.D.

I am a data-driven scientist. My training is in astrophysics, where I specialized in analysis of time series with broad applications. My current work ranges from astrophysics, to urban science, to social justice issues.

Research: My primary occupation is scientific research. I study city problems through the observations of city lights, and a diverse set of astrophysical topics: massive stars, exploding transients, remote solar system objects, and enhanced observational techniques that rely on high speed photometric instrumentation. I apply statistical and computational techniques to urban and astronomical data.

I developed software and published papers on numerous subjects.

> *I can recognize interesting problems and the appropriate methods to pursue their investigation.*
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> *I have vast experience in applying analytical, computational, and machine learning methods to identify trends and relationships between different pieces of data, and draw conclusions.*

Software development: I have developed software for high-speed imaging instrumentation and analysis of data.

> *I develop automation tools and analytics that help users access, analyze, and interpret data.*
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> *I design and implement statistical and predictive models, cutting edge algorithms that turn diverse sources of data into predictions.*

Process manager: I manage teams ranging in size from a few to hundreds with the Large Synoptic Survey Telescope, and at the University of Delaware. I manage scientific projects from conception through publication. I mentored Undergraduate and Graduate students who successfully went on to software engineering and academic careers in astrophysics, computation, and computer science.

I have experience in organizing projects, working in small and large science teams, and leading teams through all phases of a project, from start to completion.

Teacher, Communicator: I presented science at national and international conferences, including TED, I was interviewed for news articles, radio programs, and blog for national and international platforms. I taught and lectured on various data science, physics, astrophysics, and public policy topics at The University of Pennsylvania, Harvard University, New York University, and the University of Delaware.

I have vast expertise in communicating science to the public, to journalists, and other scientists. I can turn an apparently dry scientific analysis into an exciting, engaging story.

Some Programming Languages and Tools

■Python, C, C++, R, IDL, Perl, Java, SuperMongo, LaTex, Javascript, html
■Hadoop, MySQL, MapReduce
■D3, Processing, Tableau

Current occupation:
Assistant Professor, University of Delaware Department of Physics and Astronomy, Biden School of Public Policy and Administration, Data Science Institute
Visiting Faculty, New York University Center for Urban Science and Progress
Large Synoptic Survey Telescope Science Collaborations Coordinator
2019 TED fellow

Please contact me if you would like more details. federica b. bianco, PhD 2019