Christopher M. **Tasich**

ENVIRONMENTAL ENGINEER · DATA SCIENTIST · SCIENCE COMMUNICATOR

Nashville, TN, USA

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Education & Certifications

Vanderbilt University   *Nashville, TN*

Ph.D. in Environmental Engineering   *Aug 2016–Aug 2023 (Expected)*

- **Dissertation:** The impact of sea-level rise and tidal amplification on elevation stability of the Ganges-Brahmaputra delta

Vanderbilt University   *Nashville, TN*

M.S. in Earth and Environmental Sciences   *Aug 2010–Aug 2013*

- **Thesis:** Groundwater-surface water interactions in the tidally-dominated coastal region of the Bengal Basin: A one dimensional numerical analysis of tidal and surface water controls on local aquifer systems

Furman University   *Greenville, SC*

B.S. in Earth and Environmental Sciences   *Sep 2003–Jun 2007*

- **Thesis:** Structural geology and environmental systems of the Swamp Rabbit Trail in Greenville County, SC

GIS Certification Institute   *Sep 2015*

GIS Professional, License #91644

Skills

Programming	Python, R, MATLAB, Shell, Perl, LaTeX
Analytical	Numerical modeling, agent-based modeling, GIS, remote sensing, spatial statistics, statistical learning
Technical	Technical writing, server management (Linux, Windows), cloud computing (AWS), database development (PostgreSQL)
Language	French: Intermediate-written, Basic-spoken; Serbo-Croatian: Very basic-spoken
Other	Science communication, policy development and governance, organizational budgeting, interdisciplinary project collaboration

Research & Teaching Experience

Vanderbilt University   *Nashville, TN*

Research Assistant (Full time; 40 hr/wk)   *Aug 2010–Dec 2013; Aug 2016–Present*

- Research coastal resilience and coupled human and natural systems in the Ganges-Brahmaputra-Meghna (GBM) delta using a combination of modeling (numerical and agent-based), remote observation (GIS, remote sensing, satellite imagery), and direct field-based observations.
- Presented 10+ times in multiple formats (keynote, oral, poster) at various academic and professional conferences (AGU, GSA, CSDMS, ESRI).
- Developed a tidal landscape evolution model to determine the long-term resilience and elevation stability of the GBM delta.
    - Deployed the landscape model as a Python package that simulates elevation change in response to sea-level rise and tidal amplification.
    - Placed 2nd in the 2023 Syvitski Student Modeler Award and national recognized by CSDMS.
    - Invited to give a keynote lecture for the 2023 CSDMS Annual Meeting for my work on elevation equilibrium in the GBM delta.
- Coupled an agent-based model of decision-making (utility maximization) to the landscape model to investigate the impact of different engineering practices on elevation within the GBM delta.
- Led, planned and coordinated month-long field excursions to remote regions of Bangladesh.
    - Collaborated with UNAVCO, Columbia University, and Dhaka University to maintain a remote GPS base station.
    - Planned and installed a solar-powered meteorological station and Raspberry Pi installation (co-located with the GPS base station) enabling real-time weather observations.
- Developed a numerical groundwater-surface water model to investigate sources of aquifer salinization in coastal Bangladesh.
- Administered computing resources for a group of 10+ researchers.
    - Deployed 5 bare-metal Linux servers within a data center environment.
    - Built, customized, and managed server applications (JupyterHub, RStudio Server, NetLogo) and programming environments (Python, R, LaTeX) from source and containers (Docker).
    - Designed and developed a PostgreSQL relational database of interdisciplinary project data.

Swiss Semester   *Zermatt, Switzerland*

Instructor of Geology (Full time; 60+ hr/wk)   *Fall (Aug–Dec) 2008, 2012, 2013*

- Taught and advised college-bound high school students.
- Developed and conducted laboratory and field experiments, including multi-day excursions in France, Italy, and Switzerland.

Professional Experience

FACTOR, Inc.
Nashville, TN

Geospatial Consultant (Part time; 10 hr/wk)
Feb 2016–Present

- Perform network and risk analysis for federal, state, and local governments using multiparametric risk models of transportation and natural hazards.
- Collaborated with the Federal Emergency Management Agency (FEMA) to develop metrics of natural hazard risk and coastal resilience for the National Risk Index (NRI) by summarizing and coalescing scientific findings.
- Developed a Python-based GIS application to automate the identification of potential freight hazards to U.S. waterways for BNSF Railway and CSX Transportation.
- Deployed cloud-based computing (AWS) for multiple projects to assist in computational expensive processes.
- Fostered relationships and conducted interviews with various stakeholders (subject-matter experts, industry professionals, government agents) to understand pressing needs and recommend improvements to environmental risk assessment for the state of North Dakota.

Vanderbilt University
Nashville, TN

GIS Analyst II (Full time; 40 hr/wk)
Feb 2014–Aug 2016

- Developed integrated GIS datasets of social and physical data, created maps, and provided advanced geospatial and geostatistical analyses for the ISEE Bangladesh Project.
- Designed and coordinated development of an ArcGIS Online mapping application and document SQL database of project data.

NV5 Geospatial (formerly Photo Science)
Atlanta, GA

Geospatial Technician (Full time; 50 hr/wk)
Sep 2007–Aug 2008

- Developed and employed GIS routing methodologies and network analyses for planning and routing critical infrastructure for Georgia Transmission Corporation using the input of key stakeholders at both the local and state levels.
- Spearheaded an effort to adapt routing methodologies to green infrastructure development across the Atlanta metropolitan area in collaboration with the MillionMile Greenway.

Leadership Experience

Vanderbilt University
Nashville, TN

Chair, Student Services Fee Allocation Committee
Aug 2018–Aug 2021

- Appointed as the first graduate student chair to the Student Services Fee Allocation Committee.
- Led an effort to redevelop the application, interview process, and evaluating criteria to be more accessible and inclusivity for all student organizations.
- Created and led a diverse and inclusive committee of students from all 8 graduate and professional schools at Vanderbilt University.
- Organized the evaluation of 100+ graduate and professional student organizations.
- Allocated $2M+ to Vanderbilt student organizations.

Founder & President, Earth & Environmental Graduate Student Association
Aug 2017–Aug 2020

- Founded the organization to provide avenues of advocacy and community building for graduate students in the Department of Earth & Environmental Sciences.
- Elected as the first president of the association.
- Led a committee of students in developing an organizational structure to ensure an equitable and inclusive environment for all students.

Co-chair, Earth & Environmental Seminar Committee
Aug 2017–Aug 2020

- Identified and contacted 5–10 prospective speakers each academic term.
- Coordinated speaker schedules during their visit.
- Developed and planned the inaugural annual Earth & Environmental Sciences Research Symposium, which showcased the research of 40+ graduate and undergraduate students.

Treasurer, Graduate Student Council
Aug 2018–Aug 2019

- Managed and allocated a $60K yearly internal operating budget.
- Developed budgets, spending metrics, and data visualizations to enable more informed decision-making within the council and subcommittees.
- Advised the newly elected president of the council to enable a smooth transition between administrations.

President, Graduate Student Council
Aug 2017–Aug 2018

- Presided over the development and adoption of the nationally recognized Mental Health Bill of Rights and Responsibilities (MHBoR&R).
    - Facilitated conversations with the entire graduate and professional student body of nearly 6K students.
    - Developed consistent messaging that demonstrated MHBoR&R priorities to the Office of the Chancellor, Office of the Provost, Graduate School, and Office of the Dean of Students.
    - Recognized by the National Academies of Sciences, Engineering, and Medicine, the journal Nature, and Inside Higher Ed.
    - Awarded the 2020 Vanderbilt VALE Award for Best Health & Wellness Program.
- Increased funding by 500% for all graduate and professional student organization by securing a formal position on the Student Services Fees Allocation Committee.