

SHORT CURRICULUM VITA

David Brandes, Professor of Civil & Environmental Engineering

Walter A Scott Chair of Integrative Engineering Website: <http://inte.lafayette.edu>

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Education:

Ph.D. Civil Engineering (Water Resources), The Pennsylvania State University, 1998

M.S. Environmental Systems Engineering, Clemson University, 1992

B.S. Civil Engineering, with Honors, University of Maryland, 1988

Professional Experience:

Program Chair, Integrative Engineering, 2019-

Joint Appointment, National Renewable Energy Lab, 2021-22

Co-Chair, Environmental Science & Studies Program, 2016-2019

Professor, Civil & Environmental Engineering, Lafayette College, 2014-

Associate Professor, Civil & Environmental Engineering, Lafayette College, 2006-2014

Visiting Professor, Division of Natural Sci and Eng, St. Louis University-Madrid, spring 2011

Visiting Scientist, Acopian Center for Conservation, Hawk Mountain Sanctuary, 2007-08

Acting Head, Civil & Environmental Engineering, Lafayette College, 2006-07, 2011

Assistant Professor, Civil & Environmental Engineering, Lafayette College, 1999-2005

Graduate Research Assistant, Environm Sci Group, Los Alamos National Laboratory, 1994-97

Consulting Engineer, ENVIRON Corp., 1989-90, 1992-94

Awards:

2019 Van Artsdalen Award for scholarly achievement

2014 Lindback Foundation Award for excellence in teaching and outstanding contributions to campus life

2009 B. Vincent Viscomi Engineering Prize for excellence in mentoring and teaching

2013 U.S. Forest Service, Research Management and Partnership Award, Eastern Golden Eagle Working Group

2011 Pennsylvania Society for Ornithology Conservation Award (with T. Katzner, M. Lanzone, T. Miller)

Courses Taught:

CE 201 Civil Engineering Computing

CE 203 Envisioning a Sustainable World

CE 251 Fluid Mechanics

CE 321 Introduction to Environmental Engineering & Science

CE 351 Water Resources Engineering

CE 421 Hydrology

CE 423 Water Quality

CE 475 Capstone Design

CM 261 Numerical Methods in Engineering

EVSC 211 Rivers and Watersheds: Form and Function (co-taught)

EVST 254 Cultures of Nature (co-taught)

EVST 400 Engineering Studies Capstone

ES 101 Introduction to Engineering
ES 303 Environment and Energy Systems
FYS 032 What is a River?
INDS 211 Life Sciences Seminar (co-taught)
INDS 321-22 Tech Clinic (co-taught)

College Service:

Program Chair, Integrative Engineering Program
Member, College Budget Planning Committee
Faculty representative to Board of Trustees Financial Planning Committee
Member of Advisory Committee, Lafayette Office of Sustainability
Founder and Member of Advisory Board, LaFarm (<https://garden.lafayette.edu/>)

Former Service

Co-Chair, Programs in Environmental Science and Studies - prepared the program's first Self-Study Report in 2016 in preparation for an external review
Member of Advisory Committee, Programs in Environmental Science and Studies
Co-Convener, Environment & Sustainability Focus Group and co-author of report *Environment and Sustainability at Lafayette College: a Blueprint for 2025*.
Co-Leader, Engineering Division Interdisciplinary Themes Task Group
Chair, Student Conduct Committee and Information Technology & Library Committee
Member of Promotion, Tenure, and Review Committee, the Academic Progress Committee, the Computing Services Advisory Committee, the Governance Committee, the Library Advisory Committee, fac representative to the Board of Trustees Committee on Grounds and Buildings
Member of Advisory Committee, Center for Community Engagement
Member of Presidential Task Force on Curriculum Innovation, 2013-2014
Member of the Steering Committee, Mellon Environmental Initiative, 2008-2012
Advisor of Lafayette Chapter of Engineers Without Borders

Professional Activities and Service:

Member, American Society of Civil Engineers (ASCE) Environmental & Water Resource Institute (EWRI)
Member, ASCE Blue Ribbon Review Panel responsible for *Design of Urban Stormwater Controls, ASCE Manual of Practice 87*, published 2012 by WEF Press
Member, American Geophysical Union (Hydrology Section)
Member, American Water Resources Association
Member, Geological Society of America
Member, Raptor Research Foundation
Eastern Golden Eagle Working Group (egewg.org) Steering Committee
Raptor Population Index (www.rpi-project.org) Steering Committee – former Chair
Reviewer for *ASCE J. of Hydrologic Eng*, *ASCE J. of Water Resources Planning and Management*, *Water Resources Research*, *Hydrological Processes*, *Environmental Science & Techn.*, *Journal of the Am. Water Res. Assoc.*, *Journal of Environmental Management*, *Journal of Raptor Research*

Research Expertise (Full publications list available upon request):

1. *Hydrology & Hydraulics*: impacts of urbanization on streamflow regimes, particularly baseflow; watershed assessment; detention basin hydraulics; drivers and buffers of flash flooding, stream channel dynamics in response to dam removal
2. *Movement Ecology of Raptors*: mathematical modeling of orographic lift around complex terrain, modeling of raptor flight patterns based on interaction of terrain and weather, especially in relation to wind energy development

Sample Publications in Hydrology and Hydraulics

- Barlow, W.T., and **D. Brandes**, 2015. Stage-discharge models for concrete orifices: impact on estimating detention basin drawdown time. *ASCE J of Irrig and Drainage Eng* 141(12)
- **Brandes, D.** and W.T. Barlow, 2012. New method for modeling thin-walled orifice flow under partially submerged conditions. *ASCE J of Irrigation and Drainage Engineering* 138(10): 924-928.
- Thompson, M.Y., **D. Brandes**, and A.D. Kney, 2012. Using electronic conductivity and hardness data for rapid assessment of stream water quality. *J. Environ. Management*. 104:152-157.
- Kney, A.D., and **D. Brandes**, 2007. A graphical screening method for assessing stream water quality using specific conductivity and alkalinity data. *J. Environ. Management*, 82(4):519-528.
- **Brandes, D.**, Cavallo, G.J., and M.L. Nilson, 2005. Baseflow trends in urbanizing watersheds of the Delaware River basin. *J. Am. Water Res. Assoc.* 41(6):1377-1391.
- **Brandes, D.**, Hoffmann, J.G., and J.T. Mangarillo, 2005. Correlation of baseflow recession rates, low flows, and hydrologic features of small watersheds in Pennsylvania. *J. Am. Water Res. Assoc.* 41(5):1177-1186.

Sample Publications in Movement Ecology of Raptors

- Thedin R, **Brandes D**, Quon E, Sandhu R, Tripp C., 2024. A three-dimensional model of terrain-induced updrafts for movement ecology studies. 12(5), *Movement Ecology*
- R. Sandhu, C. Tripp, E. Quon, R. Thedin, M. Lawson, **D. Brandes**, et al, 2022. Stochastic agent-based model for predicting turbine-scale raptor movements during updraft-subsidized directional flights. *Ecological Modelling*, 466:109876
- Dodge, S., G. Bohrer, R. Weinzierl, S.C. Davidson, R. Kays, D. Douglas, S. Cruz, J. Han, **D. Brandes**, M. Wikelski, 2013. The Environmental-Data Automated Track Annotation (Env-DATA) System: Linking Animal Tracks with Environmental Data. *Movement Ecology* 1:3
- Katzner, T.E., **D. Brandes**, T. Miller, M. Lanzone, C. Maisonneuve, J.A. Tremblay, R. Mulvihill, and G.T. Merovich. 2012. Topography drives migratory flight altitude of golden eagles: implications for on-shore wind energy development. *Journal of Applied Ecology* 49: 1178-118.
- Bohrer, G., **D. Brandes**, et al. 2012. Estimating updraft velocity components over large spatial scales: contrasting migration strategies of golden eagles and turkey vultures. *Ecology Letters*, 15(2):96-103.
- Lanzone, M., T. Miller, P. Turk, **D. Brandes**, C. Halverson, C. Maisonneuve, J. Tremblay, J. Cooper, K O'Malley, R. P. Brooks, and T.E. Katzner. 2012. Flight responses by a migratory soaring raptor to changing meteorological conditions. *Biology Letters* 8: 710-713.
- **Brandes, D.** and D.W. Ombalski, 2004. Modeling raptor migration pathways using a fluid flow analogy. *J. Raptor Research* 38(3): 195-207.