

## Steven T. Morse

---

PhD Student, William and Mary, Data Science (SCDP)  
Major, Infantry, U.S. Army

Integrated Science Center, Rm 1252  
540 Landrum Dr, Williamsburg, VA

stmorse@wm.edu / steven.t.morse@gmail.com / +1 (757) 619-1446  
[stmorse.github.io](https://stmorse.github.io) (Personal website)

EDUCATION	(Ongoing) <i>PhD, Data Science</i> William and Mary, Williamsburg, VA Advisor: Dan Runfola	2024 -
	<i>Master of Science, Operations Research</i> Massachusetts Institute of Technology, Cambridge, MA. Thesis: <i>Persistent Cascades and the Structure of Influence in a Communication Network</i> . ( <a href="#">link</a> ) Advisors: Marta C. González (MIT), Natasha Markuzon (Draper)	2015 - 2017
	<i>Bachelor of Science, Mathematics</i> United States Military Academy, West Point, NY. Thesis: <i>A Diagrammatic Approach to Linear Algebra: Results and Trivial Proofs</i> . ( <a href="#">link</a> ) Advisor: Elisha Peterson	2004 - 2008
ACADEMIC EXPERIENCE	<i>Assistant Professor</i> <i>Instructor</i> Department of Mathematics, U.S. Military Academy, West Point, NY <ul style="list-style-type: none"><li>Course Director in the Advanced Mathematics Program for MA255 (Calculus III). Responsible for course development, execution, and assessment. Earned academic promotion to Assistant Professor. Assistant Course Director for MA255 (AY18-2) and MA153 (AY19-1).</li></ul>	February 2019 - June 2019 July 2017 - January 2019
	<i>Research Fellow, Graduate student</i> MIT and Draper Laboratory, Cambridge, MA <ul style="list-style-type: none"><li>Research fellow co-advised at MIT and Draper Laboratory, while completing requirements for a Master's in Operations Research with the MIT OR Center. Research in machine learning and networks.</li></ul>	August 2015 - June 2017
COURSES TAUGHT	Course Director, MA255 (Calculus III), 33 cadets	AY19-2
	Assistant Course Director, MA153 (Differential Equations), 51 cadets	AY19-1
	Presenter, Quantum Computing seminar (USMA)	AY19-1
	Instructor, MA255 (Calculus III), 53 cadets	AY18-2
	Instructor, MA205 (Calculus II and Diff. Eqns), 52 cadets	AY18-1
	Instructor, 15.S60 (Software Tools for Analytics), MIT	Jan 2017
HONORS & FELLOWSHIPS	Teaching Assistant, The Analytics Edge, edX (online)	Apr-Jul 2016
	BG(Ret) Pollin Award for Excellence in Teaching (AY 2019)	
	Master Teacher Program, USMA Center for Faculty Excellence (AY 2019) Draper Fellow, Draper Lab (MIT)	2015-2017

## PAPERS

S. Xu, **S. Morse**, and M.C. González. *Modeling Human Dynamics and Lifestyle using Digital Traces*. arXiv, May 2020. ([Paper](#))

**S. Morse**, K. Talty, P. Kuiper, M. Scioletti, S. Heymsfield, and D. Thomas. *Machine learning prediction of combat basic training injury discharge from 3D body shape images*. PLoS One, 15(6), June 2020. ([Paper](#))

B. Newton, M. Basset, J. Schmidt, J. Schlessinger, S. Lynch, P. Kuiper, R. Miller, **S. Morse**, J. Pleuss, T. Russell, and W.R. Pulleyblank. *Condorcet optimal clustering with Delaunay triangulation: Climate zones and world happiness insights*. Proceedings of the International Conference on SBP-BRiMS, June 2019.

**S. Morse**, M. C. González, N. Markuzon. *The Role of Persistent Cascades in Diffusion*. Physical Review E **99**, 012323, January 2019. ([Paper](#))

J. Pleuss, K. Talty, **S. Morse**, P. Kuiper, M. Scioletti, S. Heymsfield, D. Thomas. *A machine learning approach relating 3D body scans to body composition in humans*. European Journal of Clinical Nutrition (EJCN), 2018. ([Paper](#))

**S. Morse**, B. Allen, S. Florkowski. *Modeling Population Ecology on Isle Royale*. SIMIODE. May 2018. ([Paper](#))

**S. Morse**, M. C. González, N. Markuzon. *Persistent Cascades: Measuring Fundamental Communication Structure in Social Networks*. Proc. of the IEEE International Conference on Big Data (Washington D.C.), 2016. ([Paper](#))

**S. Morse**, E. Peterson. *Trace Diagrams, Signed Graph Colorings, and Matrix Minors*. Involve, vol. 3. 2009. ([Paper](#))

## CONFERENCE TALKS

*The Moose and Wolves Project: Uniting Differential Equations and Vector Calculus*. MathFest, Interdisciplinary Modeling Session (Denver, CO), August 2018.

*Are humans shaped like fruit?* Conference of the American Society for Nutrition (Boston, MA), June 2018. (Poster)

*Modeling the Influence Structure of a Network with Hawkes Processes*. Joint Mathematics Meeting, Networks Session (San Diego, CA), January 2018. ([Slides](#))

*Persistent Cascades. Measuring patterns of information spread*. IEEE International Conference on Big Data (Washington, D.C.), December 2016. ([Slides](#))

*Detecting Fundamental Patterns of Communication*. Conference on Complex Systems (CCS), Self-Organizing Patterns Satellite (Amsterdam, the Netherlands), September 2016.

*A Diagrammatic Approach to Linear Algebra: Some Results and Trivial Proofs*. 3rd Annual Spuyten-Duyvil Undergraduate Mathematics Conference, April 2008.

## SEMINAR TALKS

*What is “Artificial Intelligence”? Peeking under the Hood*. A566 Cyber Operations (elective), Command and General Staff Officer Course, April-May 2020.

*Introduction to Python*. FA49 ORSA ASI Certification Course, West Point, April 2019.

*Mathematica or Open-Source? Comparison of functionality*. Center for Faculty Development

(CFD) Seminar Series, West Point, December 2018.

*Introduction to Machine Learning*. Center for Data Analysis and Statistics (CDAS) Seminar Series, West Point, December 2018.

*Redefining Fitness and Failure: a data-based approach to assessing body types and predicting injury*. Modern War Institute Seminar Series, West Point, January 2018.

*Introduction to the Tidyverse (in R)*. Center for Data Analysis and Statistics (CDAS) Seminar Series, West Point, January 2018. ([Session notes](#))

*Patterns of communication in large-scale mobile phone data*. Network Science Center Seminar series, West Point, October 2017.

*Introduction to R for Data Science*. MIT Operations Research Center (ORC) Software Tools for Analytics seminar (15.S60), MIT, January 2017.

## ACADEMIC SERVICE

MCM/ICM, COMAP, <i>Triage Grader</i>	March 2018
Math Forum, USMA Dept Math <i>Officer</i>	June 2017 – June 2019
Security, USMA Dept Math <i>Officer</i>	June 2017 – June 2019
ORC IAP Seminar, <i>Coordinator</i>	January 2017
INFORMS, MIT Chapter, <i>Officer</i>	January 2016 – December 2016

## STUDENT DEVELOPMENT

*Academic advisor:*  
Kevin Talty (API: LTC Mike Scioletti, PI: Dr Diana Thomas). Co-advisor. AY18. Using machine learning to predict injury in basic trainees using 3D body imagery.

- Winner of USMA Hollis Award (2018)
- Presented at Experimental Biology (April 2018)
- Presented at MORS (June 2018) (MAJ Chris Fisher on-behalf-of)
- Selected for Lincoln Labs Fellowship and Masters in Business Analytics (MIT)

Joe Schlessinger (Co-advisor, AY18; Advisor, AY19). Machine learning and finance applications.

*Other:*

Leader Challenge Platoon Mentor (AY18-1, AY18-2, AY19-1)  
PL300 (Leader Psychology) Mentor, two cadets (AY19-1, AY19-2)  
Special Leader Dev. Program for Honor (SLDP-H) Mentor, two cadets (AY18-2, AY19-1)  
Cadet Leader Development Training (CLDT) Company Mentor, (AY19-0)  
Mathematical Contest in Modeling (MCM) Team Sponsor, three cadets (AY18-2)

## VOLUNTEER SERVICE

GracePointe Church, <i>Lead Guitar and Vocals</i>	August 2024 –
Harbor Church, <i>Lead Guitar and Vocals</i>	May 2023 – June 2024
Math Band, <i>Lead Guitar and Vocals</i>	August 2017 – May 2019
Journey Church, <i>Lead Guitar and Setup</i>	November 2015 – April 2017
Camp Buehring Chapel, <i>Lead Guitar</i>	November 2013 – May 2014
First Baptist Church, <i>Piano, vocals</i>	November 2009 – April 2010

**MILITARY  
EXPERIENCE**

*Security Force Advisor* June 2022 - June 2024  
5th Security Force Assistance Brigade, US Army Pacific Command  
Joint Base Lewis-McChord, WA

*Battalion Executive Officer* October 2021 - June 2022  
*Battalion Operations Officer* July 2020 - October 2021  
1-17 Infantry Regiment (2SBCT), 7th Infantry Division  
Joint Base Lewis-McChord, WA

*Assistant Secretary of the General Staff* January 2015 - June 2015  
4th Infantry Division, Fort Carson, CO

*Company Commander* October 2013 - January 2015  
Bravo Company, 2-8 Infantry Regiment (2ABCT), 4th Infantry Division  
Fort Carson, CO and Camp Buehring, Kuwait

*Brigade Assistant Operations Officer* November 2012 - September 2013  
2nd (Armored) Brigade Combat Team, 4th Infantry Division, Fort Carson, CO

*Company Executive Officer* August 2011 - February 2012  
Headquarters and Headquarters Company, 2-502 Infantry Regiment (2BCT), 101st Air-  
borne Division, Fort Campbell, KY

*Rifle Platoon Leader* July 2009 - July 2011  
Attack Company, 2-502 Infantry Regiment, 101st Airborne Division  
Fort Campbell, KY and Kandahar, Afghanistan