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EDUCATION:

- Ph.D., Engineering Sciences and Applied Mathematics, June 2004
  Northwestern University, Evanston, IL
  Dissertation research: "Mathematical Modeling of Polymerization Waves"
  Committee: Vladimir A. Volpert (chair), David Chopp, Alvin Bayliss

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Selected COURSES TAUGHT:

1. Partial Differential Equations (MATH 4470/5470), undergraduate and graduate class, UCB, Spring 2014, Spring 2015, Fall 2015, Fall 2021.

2. History of Mathematical Ideas (MATH 4820/5820), undergraduate and graduate class, UCB, Spring 2021 (remote).

3. Operations Research (MATH/APPM 4120/5120), undergraduate and graduate class, Spring 2018, Spring 2020 (Covid), Spring 2022.

4. Intermediate Numerical Analysis I (MATH/APPM 4650), UCB, Spring 2016, Spring 2017, Spring 2019, Spring 2021 (remote), Spring 2022.

5. Ordinary Differential Equations (MATH 3430), UCB, Fall 2014, Fall 2017, Fall 2018, Summer 2018, Fall 2019, Spring 2020 (Covid), Summer 2020 (remote), Fall 2020 (remote), Summer 2021 (remote).

6. Introduction to Linear Algebra (MATH 3130), UCB, Fall 2014, Fall 2008.
   Textbook: D. Lay, Linear Algebra and its Applications, 4th edition, Addison-Wesley, 2012.

7. Seminar in Guided Mathematics Instruction (MATH 3850), UCB, Spring 2019, Fall 2018, Spring 2018, Fall 2017, Spring 2017, Fall 2016.

8. Introduction to Statistics (MATH 2510), UCB, Spring 2008.

9. Calculus I: Differential Calculus (MATH 1300), sections including Honors RAP, UCB, Spring 2014, Spring 2009, Fall 2008, Spring 2008, Fall 2007.

10. Data and Models (MATH 1212), UCB, mostly for Psychology majors, Spring 2019, Fall 2019, Fall 2020, Fall2021.

11. Precalculus (MATH 1150), UCB, redesigned small sections: Fall 2018, Spring 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016. Graduate TAs and Undergraduate LAs.

12. Precalculus (MATH 1150), UCB, large section: Spring 2016; Fall 2015, Spring 2015, Fall 2014, Spring 2014, Fall 2009. Graduate TAs.

13. Math Analysis in Business (MATH 1112), UCB, Fall 2015, Spring 2015.

14. Calculus for Social Science and Business (MATH 1081), UCB, Spring 2013.

15. Finite Mathematics (MATH 1071), sections including Libby RAP, UCB, Fall 2013, Fall 2012.

16. Quantitative Reasoning and Math Skills (MATH 1012), UCB, Spring 2010.

17. College Algebra (MATH 1011), UCB, Spring 2012, Fall 2011, Fall 2010, Spring 2008.

UNDERGRADUATE RESEARCH:

- Sofia Martinez-Castillo, McNair Scholars Program, Research thesis, "SIR Model for COVID-19: Numerically solving a system of ODEs using Python", August 2021.

- Khaled Allen, CAS Honors Student, Summa cum laude, Math honors thesis "An Exploration of Quantum Game Theory and its Applications," November 2020.

- Max Howard, Internal Math REU, Theory of Support Vector Machines versus Ordinary Least Square, Summer 2020.

- Wei Qi, Internal Math REU, Theory of Support Vector Machines versus Ordinary Least Square, Summer 2020.

- Adam Sanchez, Internal Math REU, Theory of Support Vector Machines versus Ordinary Least Square, Summer 2020.

- Jonathan Powell, Undergraduate Independent Study (MATH 4900), Study of Regression Models: OLS versus SVM using R programming, UCB, Fall 2019.

- Sarah Liddle, Internal Math REU, Numerical Solutions of PDEs: airplane wing simulation, UROP partially funded, UCB, Summer 2017.

- Qi Pei, Internal Math REU, Numerical Solutions of PDEs: airplane wing simulation, UROP partially funded, UCB, Summer 2017.

- Tyler Wettstein , Internal Math REU, Numerical Solutions of PDEs: airplane wing simulation, UROP partially-funded, UCB, Summer 2017.

- Elizabeth Parsons, Wavelet Analysis in Digital Signal Processing (DSP), Graduate Independent Study (MATH 6900), Spring 2016.

- Thomas Bisbee, Internal Math REU, Numerical Solutions of PDEs, UROP partially funded, UCB, Summer 2015.

- Eliot Kersgaard, Internal Math REU, Numerical Solutions of PDEs, UROP partially funded, UCB, Summer 2015.

- Dalton Jones, Undergraduate Independent Study (MATH 4900), Theory of Reaction-Diffusion Equations, UCB, Fall 2014.

- Julia Young, Undergraduate Independent Study (MATH 4900), Numerical Analysis of Reaction-Diffusion Equations, UCB, Fall 2014.

RESEARCH INTERESTS:

- Partial differential equations, specifically, systems of nonlinear reaction-diffusion equations, mathematical modeling using both analytical and computational methods.

- Expansion of mathematics, physics, and chemistry to develop mathematical models of the frontal polymerization process.

- Mathematical biology, in particular, tissue engineering and tissue growth, which can lead to propagation of degradation fronts.

Selected PRESENTATIONS:
- Vernerey, D., QED: CU Math Club, Magic of Mental Math: ways to annoy your siblings, October 2021.

- Vernerey, D., SRM Institute of Science & Technology, College of Science and Humanities, Department of Commerce, Tamil Nadu, India, ***Invited Keynote*** talk: Animation Oriented

virtual teaching method, International Faculty Development Program on Online Teaching Metrics, May 2021 (remote).

- Vernerey, D., QED: CU Math Club, Viscous Fingering (Saffman-Taylor instability with pattern formation), April 18, 2018.

- Vernerey, D., Machen, R., & Stalvey, H. E. (2017). Developing an active learning environment in precalculus. Special session on Active Learning in Undergraduate Mathematics, AMS spring southeastern sectional meeting. Charleston, SC, March 10–12, 2017.

- Vernerey, D., Stalvey, H., & Machen, R. Advisor Day, A Collaboration Between Faculty and Student Affairs and the Results; SASC/MATH regarding Precalculus, February 14, 2017.

PUBLICATIONS:

- Vernerey, D. E., Precalculus Coursepack, Fall **2017**, used for all sections of MATH 1150.

- Devadoss, D. E., Pojman, J. A.; Volpert, V. A. "Mathematical Modeling of Thiol-Ene   Frontal Polymerization," *Chem. Eng. Sc*i. **2006**, *61*, 1257-1271.

- Devadoss, D. E., Volpert, V. A. "Mathematical Modeling of Radially Propagating Polymerization Waves with the Gel Effect," *Applied Math. and Computation*. **2006**, *172*, 1036-1053.

- Devadoss, D. E., Volpert, V. A. "Modeling Isothermal Free-Radical Frontal Polymerization with Gel Effect Using Free Volume Theory, with and without Inhibition," *J. Mathematical Chem*. **2006**, *39*, 73-104.

- Devadoss, D. E., Volpert, V.A. "Mathematical Modeling of Polymerization Waves" **2004** (thesis).