

CURRICULUM VITAE  
*December, 2025*  
**Patrick Nelson, PhD**

***Work Address***

College of Arts and Sciences  
Lawrence Technological University  
Interim Dean and Professor  
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***Academic Positions***

- 2023 - Lawrence Technological University, Southfield, MI  
Dean and Professor, College of Arts and Sciences
- 2024 - Lawrence Technological University, Southfield, MI  
Dean of Graduate Studies
- 2022 Lawrence Technological University, Southfield, MI  
Associate Dean for Research, College of Arts and Sciences
- 2015 - 2023 Lawrence Technological University, Southfield, MI  
Chair, Mathematics and Computer Science Department
- 2013 – 2020 University of Michigan, Ann Arbor, MI  
Visiting Professor of Mathematics
- 2012 – 2023 Lawrence Technological University, Southfield, MI  
Associate Professor, Department of Mathematics and Computer Science
- 2010 – 2012 Lawrence Technological University, Southfield, MI  
Adjunct Professor of Mathematics
- 2008 – 2012 University of Michigan Medical School, Ann Arbor, MI  
Research Professor, Center for Computational Medicine and Bioinformatics
- 2003 – 2005 University of Michigan Medical School, Ann Arbor, MI  
Research Scientist - Dr. Kathleen Collins Lab, Microbiology and Immunology
- 2002 – 2008 University of Michigan, Ann Arbor, MI  
Assistant Professor (tenure-track), Department of Mathematics
- 2000 – 2002 University of Michigan, Ann Arbor, MI  
Assistant Professor (non-tenure track), Department of Mathematics
- 1999 – 2000 Duke University, Durham, NC  
Postdoctoral Fellow with Dr. Mike Reed, Department of Mathematics
- 1998 – 1999 University of Minnesota, Minneapolis, MN  
Postdoctoral Fellow, Institute for Mathematics and its Application

***Education***

1994 – 1998	University of Washington, Seattle, WA <b>PhD</b> Applied Mathematics under Professor James D. Murray, FRS
1994 – 1995	University of Washington, Seattle, WA <b>MS</b> Applied Mathematics
1990 – 1994	Arizona State University, Tempe, AZ <b>BS</b> Mathematics

### ***Administrative Experience***

As my record indicates, I have been a highly successful and prolific researcher. However, my passions and greatest strengths are in leadership and mentoring, as I find that to be the space where I can be most effective and positively impact my faculty colleagues, students, and the community, within which I serve. In my role as a dean and a chair I have been able to initiate a cultural change within my college highlighted by a substantial increase in sponsored research, increase in enrollment, and a doubling of the size of the faculty based on the number of tenured, research-active, and full professors since 2017. These accomplishments as a chair and as a dean have been acknowledged through consistently receiving exceptional annual reviews from my supervisor (Deans and the Provost), but more importantly, from my faculty colleagues. For example, one semester into my tenure as the dean, an assessment was sent to the CoAS faculty to rate my performance; and scores came back in the 82 – 98% range for either Agree or Strongly Agree on all questions. I am humbled and proud of the support I receive, as it is critically important for me to be considered by colleague as a “positive motivator” and “a team builder.”

**Dean, College of Arts and Sciences, Lawrence Technological University** (January 2023 – present)

A sample of the accomplishments to date includes,

- Nurturing and facilitating the growth and development of all faculty, students, and staff by defining and upholding the highest standards
  - Created a mentorship program for faculty who have been “stuck” at Associate Professors to move to Full Professor
    - When I took over as Dean, our college had only two full professors; we now have five.
    - Faculty are now more engaged in their continued learning, especially with the challenges of AI.
- Creating a positive work environment through strong interpersonal skills within the college and across campus, as seen by my Spring 2023 faculty evaluation, where I received 82-98% ratings of Agree or Strongly Agree across all questions (2024 evaluations provided similar results)
  - Trust is the foundation to achieve success and see positive, impactful results
  - The team has the success; I simply improve the playing field in order to support the University’s Vision and Mission in line with what the faculty need and deserve.
  - Once trust is built, we can allow open debate of ideas, passions and goals that will enhance the college.
- Investing in college infrastructure to update equipment, providing exceptional research capabilities, and creating a culture of interdisciplinary collaboration
  - First college computing workstation of 8 GPU
  - 400 Mhz NMR Spectrometer
  - Keyence Fluorescence Microscope,

- Autoclave
- High-Performance Liquid Chromatography System
- Numerous Spectrometers
- Providing academic and administrative support and mentorship to the department chairs, program directors, associate deans, and administrative assistants
  - Created a mentoring program for associate chairs and administrative assistants
  - Key strengths of the college are realized when everyone has the opportunity to succeed and advance.
- Working closely with the Provost and President to advance the University's vision and strategic plans and to develop future innovations and advancements
  - Introduced new 3+1 and 2+2 programs with Astana University in Kazakhstan
  - Served to find the founding Dean of the College of Engineering in Iraq
  - Developed and implemented the first PhD program in CoAS history
    - Have five students enrolled in the PhD program
  - Developed strong relations with high schools in Detroit to truly provide impactful opportunities for success at LTU
- Working with the VP of Finance, department chairs, program directors, and administrative assistants to ensure we are operating with a balanced budget
  - Not only kept a balanced budget but was also able to negotiate for significant increases in areas such as
    - New faculty hiring packages
    - Updates to infrastructure
    - Getting necessary salary adjustments for faculty who were identified to be significantly underpaid based on their productivity and value to the university
  - Developed a strategy for college wide savings due to recent trends with international students attending college in the US without having to lay off full time faculty or staff
- Supporting cross-college initiatives and collaborative efforts for faculty, students, and programs
  - Have built strong collaborations with all four colleges outside of CoAS
    - Autonomous robotics with College of Engineering
    - Game software and design with the College of Architecture
    - Interdisciplinary cyber security programs and a FinTech center with the College of Business and Information Technology
    - Health Care and Data Science with the College of Health Sciences
- Successfully managing conflict resolutions in numerous areas
- Advocating to the Provost and President the needs and interests of our college
- Working closely with the other Deans to enhance the opportunities for our campus as well as the reputation of our university
- Advocating to ensure a diverse and successful student body
  - Computer Science is seeing unprecedented growth in the MS program, including students from underrepresented groups in the US
  - Leading growth strategies for programs in Biology, Chemistry, and Psychology, focusing on local high schools
    - Developed an ambassador program for these schools where faculty and LTU students work with the high school students on research projects
  - MICUP grant saw the first cohort of students register to attend LTU from local community colleges – all of these students were identified as “at risk” according to State of Michigan standards
- Making the tough decisions with the utmost respect and thought toward what is best for the student, faculty, staff, program, college, and university
  - Building a strong “team” mentality
  - Better understanding of expectations and willingness to debate ideas in productive ways

- Building trust with faculty
- Engaging with alumni, industry, and other external stakeholders to solicit input on the impact of our programs
- Developing and implementing fundraising strategies that can support our college initiatives as well as provide student scholarship
- Recently raised over \$2.4 million dollars to support my Hidden Figures Scholar program which will provide numerous full ride scholarships to LTU for highly motivated student in the Detroit area.
- Serving as a positive role model and mentor to the faculty and staff
- Leading with the support of the faculty, the educational, scholarship, and community activities through proper planning, implementation, and assessment to ensure the highest level of success

**Associate Dean for Research, College of Arts and Sciences, Lawrence Technological University (August 2022 – May 2023)**

I was only in the position for a few months while still serving as Chair or both Chair and interim Dean. Within the first month, I accomplished the following:

- Introduced and implemented a one-day research symposium where faculty in all programs and disciplines were asked to give a short presentation on their research. This led to an increased understanding within the college of what all the faculty were doing but also allowed faculty to identify new collaborations
- Developed a strategy for the review and feedback of sponsored grants to improve the success
- Worked with the Dean to identify focused research areas to build collaborative groups that can compete with R2 and even R1 institutions
- Introduced the College Enhancement Grant program to help foster more substantial research opportunities for our faculty

**Chair, Department of Mathematics and Computer Science, Lawrence Technological University (May 2016 – January 2024)**

A sample of my accomplishments is listed below:

- Completely changed the culture of the mathematics program from existing as just a service department to one that now can offer significant, interdisciplinary research and learning opportunities for our students
- Led the efforts to increase enrollment by over 400% in the Master of Science in Computer Science program
- Hired and mentored three Assistant Professors who became tenured, Associate Professors (awaiting approval from the BOT in a few weeks). These faculty were the first newly tenured faculty in the department since 2015
- Worked with the faculty to define the future goals of the department, which included moving into areas such as Data Science, Actuary Science, Artificial Intelligence, and Cybersecurity
- Created a Computer Science advisory board made up of industry leaders to provide critical advice about curriculum development, industry trends in hiring, fundraising, and, more importantly, building strong connections with our alumni
- Worked with the faculty, staff, and administration to not only maintain a budget but to ensure a surplus for 6 years straight

- Developed and implemented new strategies for improving the success rates of students in our developmental classes, including redefining the Calculus labs and introducing a tutoring program to assist students who are struggling
- Led, along with IT and e-Learning, the department through COVID-19 where over 120 classes had to be flipped to online while ensuring the highest standards still existed in the classroom
- Worked closely with VP Kujawa to increase our number of offerings for dual-enrolled programs from 5 schools to over 40 schools, in addition to creating the first early middle college for computer science at Henry Ford High School. We now have three early middle colleges and are working on two more.
  - We currently have over 800 students now in our dual enrollment program

**President, Board of Directors, Cornerstone Jefferson Douglas Academy, Detroit (2017 – present)**

- Preside over a 5.5 million dollar budget and ensured management met the demands of the school and the students while balancing the budget
- Introduced new learning procedures to help improve math proficiency scores. Scores have increased 100% over the past two years.
- Held bi-monthly meetings to review academic, financial, human resources, marketing, and enrollment strategies of a school with between 500 – 600 students
- Reviewed, approved, and managed discussions with third-party auditors required by the state
- Built strong working relations between the school administrators and management team to ensure everyone is on the same page of success of the wonderful students
- Participated in multiple training sessions on board management, finances, athletics, fundraising, and community engagement
- Held all faculty and staff accountable for the success of the students
- Completed numerous training courses on topics ranging from budgets and finance, management techniques, leadership training, contract negotiations, and fundraising

***Professional Experience and Honors***

2024 -	Director of Math Improvement and Instruction – CEG Schools
2017 -	Board of Directors – President, Jefferson-Douglas Academy, K-8, Detroit
2015 -	Associate Editor, MDPI Journals
2012 - 2023	King, Chavez and Parks (KCP), Macro Program Director for Mathematics, LTU
2015	International Program Committee, IFAC Time Delay Systems (TDS), UM
2011	Organizing Committee, 2 <sup>nd</sup> World Conference on Diabetes and Metabolism
2011 – 2016	Associate Editor, Journal of Diabetes and Metabolism
2007 – 2020	Associate Editor, Mathematical Biosciences and Engineering
2007 – 2010	Board of Directors, Society for Mathematical Biology
2006 – 2012	Director and PI, University of Michigan Undergraduate Program in Math Biology NSF-UBM, Grant, \$945,000
2002 – 2010	Burroughs Wellcome Fellow Career Award at the Scientific Interface
1994	Nominated, for outstanding graduating senior College of Liberal Arts and Sciences at Arizona State University

***Grants***

***Recent***

2021 NSF HDR DSC (Joint with UM, Wayne State, Oakland, and LTU) Jagadish (PI), Nelson (Co-PI) Closing the Digital Loop with SUCCEEDS: Supporting Urban Communities through Collaboration and Education in Ethical Data Science. (Reviewed as top 5 grant but only 3 were funded)  
**LTU % \$101,114**

**Completed Research Support**

2013 – 2016	NIH-NIDDK Pietropaolo (PI), Nelson (Co-PI) A Novel Approach Applying CGM Metrics to Identify a Pre-diabetic State Role: Co-PI with 20 % effort	<b>\$450,000</b>
2010 – 2015	NIH RO1 Pietropaolo (PI) Investigating the role of new immunologic biomarkers in first degree relatives of T1DM patients with and without T1DM from the same geographical area. Role: Consultant (Modeler with 5 % effort)	<b>\$1,750,000</b>
2006 - 2010	NSF CMMI-0555765 Ulsoy (PI) Nelson (Co-PI 50% effort) Analysis of Time-Delayed Systems via Lambert Functions	<b>\$276,300</b>
2005 – 2012	NSF DMS-06-541 NSF-UBM Nelson (PI) Supplying Undergraduate Biology and Mathematics Education and Research Group Experiences to Students at The University of Michigan	<b>\$945,000</b>
2002 – 2011	Burroughs Welcome Career Award at the Scientific Interface A Theoretical Study of HIV-1 Pathogenesis: From Primary Infection, through Latency, to Effective Drug Therapy or Progression to AIDS,	<b>\$525,000</b>
2003 – 2004	Howard Hughes Bioinformatics Pilot Grant Nelson (PI) Developing computational models for HIV, University of Michigan	<b>\$55,000</b>
2001	University of Michigan, Rackham Fellowship	<b>\$7,000</b>
1997	University of Washington, NSF Fellowship, Department of Zoology	<b>\$10,000</b>

**Peer-review publications (Citations total over 5800 as of March 2025)**

**Books/Book Chapters**

1. Yi S, Duan S, **Nelson P**, Ulsoy G, Analysis and Control of Time Delay Systems Using the LambertW DDE Toolbox, Delay Systems, Advances in Delays and Dynamics 1, **Springer International Publishing**, 2014
2. **Nelson PW**. Dynamical Systems Theory, Delay Differential Equations. **Springer, Encyclopedia of Systems Biology**, Book Chapter, 2013
3. Yi S, **Nelson PW**, Ulsoy G. Analysis and control of time delay systems via the Lambert W function. **World Scientific Press**. 2010

**Recent Papers/Articles**

55. Bukaita W, Anyaiwe O, **Nelson P**. Predicting Type 1 Diabetes Progression using Deep Learning on Continuous Glucose Monitoring Data. *Medical Research Archives*, **2025**

54. Bukaita W, Anyaiwe D, **Nelson P**. An Analysis of Temperature Variability Using an Index Mode, *Proceedings of 2024 Future of Information and Communication Conference (FICC) in the series "Lecture Notes in Networks and Systems 2024*

53. Anyaiwe O, Schulte J, **Nelson P**. Variability Analysis and Machine Learning of SELDI-TOF-MS Saliva Data for Alzheimer's Disease Diagnoses, *Advances in Information and Communication. FICC Lecture Notes in Networks and Systems*, vol 651. Springer, **2023**

52. Darrell M. Wilson<sup>\*1</sup>, Susan L. Pietropaolo<sup>\*2</sup>, Maria Acevedo-Calado<sup>\*2</sup>, Shuai Huang<sup>3</sup>, Destiny Anyaiwe<sup>3</sup>, David Scheinker<sup>1</sup>, Andrea K. Steck<sup>4</sup>, Madhuri M. Vasudevan<sup>2</sup>, Siripoom V. McKay<sup>2</sup>, Jennifer Sherr<sup>5</sup>, Kevan C. Herold<sup>5</sup>, Jessica L. Dunne<sup>6</sup>, Carla J. Greenbaum<sup>7</sup>, Michael J. Haller<sup>8</sup>, Desmond A. Schatz<sup>8</sup>, Mark A. Atkinson<sup>8</sup>, **Patrick W. Nelson<sup>3</sup>**, and Massimo Pietropaolo<sup>2</sup> CGM Metrics Identify Dypglycemic States in Subjects from the TrialNet Pathway to Prevention Study – Baseline Data, *Diabetes Care – Co-Senior Author* Mar 1;46(3):526-534. doi: 10.2337/dc22-1297. PMID: 36730530 **2023**

51. Franco Delogu<sup>a\*</sup>, Michelle Nelson<sup>f</sup>, Shannon C. Timmons<sup>c</sup>, Melinda Weinstein<sup>a</sup>, Paul Jausen<sup>a</sup>, Mazin Al-Hamando<sup>b</sup>, LaVetta Appleby<sup>c</sup>, Bhubanjyoti Bhattacharya<sup>c</sup>, Wisam Bukaita<sup>b</sup>, Chan-Jin Chung<sup>b</sup>, Matthew Cole<sup>d</sup>, Ty Faulkner<sup>a</sup>, Margaret M. Glembocki<sup>c</sup>, Christopher C. Harris<sup>a</sup>, Matthew Johnston<sup>b</sup>, Vivian Kao<sup>a</sup>, Aleksandra Kuzmanov<sup>c</sup>, Paula Lauren<sup>b</sup>, Kineta Morgan-Paisley<sup>a</sup>, Jeffery Morrisette<sup>c</sup>, George Moschelli<sup>c</sup>, **Patrick Nelson<sup>b</sup>**, Bruce Pell<sup>b</sup>, Joy Schaefer<sup>a</sup>, Randy Schantz<sup>a</sup>, Daniel Shargel<sup>a</sup>, Fauzia Siddiq<sup>c</sup>, Meng Zhou<sup>c</sup>, Julie Zwiesler-Vollick<sup>c</sup>, Na Yu<sup>e</sup>, Hsiao-Ping Moore<sup>c</sup>, **Frontiers in Education October 2023**

50. Pell B, Johnston M, **Nelson P**. A Data-Validated Temporary Immunity Model of Covid-19 Spread in Michigan, *Mathematical Biosciences and Engineering* **19(10)**, May 2022

49. Johnston M, Pell B, **Nelson P**. A Mathematical Study of Covid-19 Spread by Vaccination Status in Virginia, *Applied Sciences* **12(3)**, *Dynamic Models of Biology and Medicine VIII*, <https://doi.org/10.3390/app12031723>, **2022**

48. **Nelson, P**. Covid 19 and Why it Sucks, LTU News Article, November 2020

47. Wilson D, **Nelson P**, Scheinker P, Pietropaolo S, Acevedo-Calado M, Steck M, Dunne J, Greenbaum C, Ebrahimi M, Pietropaolo M. CGM Metrics Identify Dypglycemic States in Subjects with Normal OGTT from the TrialNet Pathway to Prevention Study, *American Diabetes Association 79<sup>th</sup> Scientific Sessions*, 2019

46. Greenfield B, Reed S, Shaked S, Marrs C, **Nelson P**, Raxter I, Xi C, McKone T, Jolliet O. Modeling the emergence of antibiotic resistance in the environment: an analytical solution for the minimum selection concentration, *Antimicrobial Agents & Chemo.* V62(3) e01686, 2017

#### **Papers 2012 – 2015**

45. Yi S, Ulsoy G, **Nelson P.** (2015) Experimental Evaluation of Vision-Based DC Motor Position Control with Time Delay, *IEEE*

44. Yi S, Duan S, **Nelson P**, Ulsoy G. (2014). Analysis and control of time delay systems using the LambertW\_DDE toolbox, *Delay Systems* 271-284.
43. Jaiswal M, McKeon K, Comment N, Henderson J, Swanson S, Plunkett R, **Nelson P**, and Pop-Busui R. (2014). Association between Impaired Cardiovascular Autonomic Function and Hypoglycemia in Patients with Type 1 Diabetes Mellitus. **Diabetes Care**, 37, 2616-2621.
42. Jaiswal M, Plunkett C, Henderson J, Comment N, **Nelson P**, Pop-Busui R, Feldman E. (2013). The Impact of Glycemic Variability on CAN in Patients with Type 1 Diabetes.
41. Yi S, **Nelson, PW**, Ulsoy AG (2013). Proportional-Integral Control of First- Order Time-Delay Systems via Eigenvalue Assignment. **IEEE Transactions on Control Systems Technology**, 21(5), 1586-1594.
40. Yi S, Duan S, **Nelson PW**, Ulsoy AG (2012). The Lambert W Function Approach to Time Delay Systems and the LambertW\_DDE Toolbox. Paper presented at the **10-th IFAC Workshop on Time Delay Systems**, Boston, pp. 114-119.
39. Simonov M, Rawlings R, Reed S, Shi X, **Nelson P**. Modeling adaptive regulatory T-cell dynamics during early HIV infection, **PLOS one**, V7 (4), 2012, e33924.

#### **Papers/Articles 2010 – 2011**

##### **2011:**

35. Rawlings RA, Shi H, Yuan L, Brehm W, Pop-Busui R, **Nelson P**, Translating glucose variability metrics into the clinic via Continuous Glucose Monitoring: a Graphical User Interface for Diabetes Evaluation (CGM-GUIDE), **Diabetes Technology and Therapeutics**, V13(12), 2011, pgs 1241-48.
36. Yi S, **Nelson PW**, Ulsoy AG, PI Control of first order time-delay systems via eigenvalue assignment. **American Control Conference**, 2011, pp. 4213-4218, San Francisco, CA, USA.
37. Yi S, **Nelson PW**, Ulsoy AG, DC Motor Control Using the Lambert W Function Approach, **10-th IFAC Workshop on Time Delay Systems 2011**
38. Yi S, **Nelson PW**, Ulsoy AG, The Lambert W Function Approach to Time Delay Systems and the Lambert W\_DDE Toolbox, **10-th IFAC Workshop on Time Delay Systems**, 2011

##### **2010:**

30. Yi S, Ulsoy AG, **Nelson PW**. Feedback control via Eigenvalue assignment for time delayed systems using the Lambert W Function. **Journal of Vibration and Control** 2010; (published on-line 2010).
31. Yi S, **Nelson PW**, Ulsoy AG. Robust control and time-domain specifications for systems of delay differential equations via eigenvalue assignment. **Journal of Dynamic Systems Measurement and Control** 2010; 132:3:27-38.
32. Nypaver CM, Thornton MM, Yin SM, Brach DO, **Nelson PW**, Jones AE, Bortz DM Younger JG. Dynamics of human complement-mediated killing of *Klebsiella pneumoniae*, **Am. J. Respir. Cell Mol. Biol.**, V43(5), 2010, 585.
33. Morran M, Casu A, **Nelson P**, Arena V, Pietropaolo S, Zhang Y, Satin L, Omenn G, Trlcco M, Becker D, and Pietropaolo M. Humoral autoimmunity against multiple extracellular epitopes of the

neuroendocrine autoantigen IA-2 heightens the risk of Type 1 Diabetes, **Endocrinology**, V151, 2010, pgs 2528-37

34. Yi S, Ulsoy AG, **Nelson PW**. Design of observer-based feedback control for time-delay systems with application to automotive powertrain control. **Journal of Franklin Institute** 2010; 347:1:358-376 (invited).

### ***Earlier Papers in chronological order***

1. Perelson AS, Nelson PW. Mathematical Models of HIV-Dynamics in vivo. *SIAM Review* 1999; 41:1:3-44.
2. Nelson PW, Murray JD, Perelson AS. A model of HIV pathogenesis that includes an intracellular delay. *Mathematical Biosciences* 2000; 163:2:201-215.
3. Perelson AS, Nelson PW. Modeling Viral Infections. An Introduction to Mathematical Modeling in Physiology, Cell Biology and Immunology 2001; AMS Providence, RI.
4. Nelson PW, Mittler J, Perelson AS. Effect of drug efficacy and the eclipse phase of the viral life cycle on the estimates of HIV viral dynamic parameters. *Journal of Aids* 2001; 26:5:405-412.
5. Nelson P, Hernandez J. Modeling the immune response to parasitic infections: Leishmaniasis and Chagas disease. *Comments on Theoretical Biology* 2002; 6:2:1-15.
6. Nelson PW, Perelson AS. Mathematical Analysis of delay differential equations models of HIV-1 infection. *Mathematical Biosciences* 2002; 179:1:73-94.
7. Bortz D, Nelson P. Sensitivity Analysis of Nonlinear Lumped Parameter Models of HIV Infection Dynamics. *Bulletin of Mathematical Biology* 2004; 66:1009-26.
8. Criminale WO, Jackson TL, Nelson PW. Limit cycle-strange attractor competition. *Studies in Applied Mathematics* 2004; 112:133-60.
9. Forde J, Nelson, P. Applications of Sturm Sequences to Bifurcation Analysis of Delay Differential Equation Models. *Journal of Mathematical Analysis and Applications* 2004; 300:2:273-284.
10. Nelson PW, Gilchrist M, Coombs D, Hyman J, Perelson AS. An Age-structured model of HIV infection that allows for variations in the production rate of viral particles and the death rate of productively infected cells. *Mathematical Biosciences and Engineering* 2004; 1:2:267-88.
11. Ciupe S, De Bivort B, Bortz D, Nelson P. Estimating kinetic parameters from HIV primary infection data through the eyes of three different mathematical models. *Mathematical Biosciences* 2006; 200:1 – 27.
12. Bortz D, Nelson, P. Model Selection and Mixed-Effects Modeling of HIV Infection Dynamics. *Bulletin of Mathematical Biology* 2006; 68:8:2005-25.
13. Yi S, Ulsoy G, Nelson P. Solution of systems of linear delay differential equations via Laplace Transformations, *Proceedings 45<sup>th</sup> IEEE Conference on Decision and Control* 2006;2535-40.
14. Yi S, Nelson PW, Ulsoy AG. Survey on analysis of time delayed systems via the Lambert W function, *Dynamics of Continuous, Discrete and Impulsive Systems (Series A)* 2007; 14:s2:296-301. [Also presented at Proc. 5<sup>th</sup> Int. Conf. on Differential Equations and Dynamical Systems, Edinburg, Texas, Dec. 2006]
15. Yi S, Nelson PW, Ulsoy AG. Chatter stability analysis using the matrix Lambert function and bifurcation analysis. *Proc. International Conference on Manufacturing Science and Engineering* 2006; MSEC.

16. Ciupe S, Ribeiro R, Nelson P, Dusheiko G, Perelson AS. The role of cells refractory to productive infection in acute hepatitis B viral dynamics. *Proceedings of the National Academy of Science* 2007; 104:5050-55.
17. Ciupe S, Nelson P, Rubiero R, Perelson A. Modeling the mechanisms of acute hepatitis B virus infection. *Journal of Theoretical Biology* 2007; 247:1:23-35.
18. Greineder N, Nelson P, Dressel A, Erba H, and Younger J. An in-vitro and in-silico analysis of the utility of Annexin V binding to lymphocytes as a biomarker in Emergency Department's studies of Sepsis, *Academic Emergency Medicine*, V14(9), 2007, pgs 763-771
19. Yi, S., Nelson, P., and Ulsoy, G. Delay differential equations via the Matrix Lambert W Function and bifurcation analysis: Application to machine tool chatter. *Mathematical Biosciences and Engineering* 2007; 4:2:355-368.
20. Yi S, Nelson PW, Ulsoy AG. Controllability and Observability of Systems of Linear Delay Differential Equations via the Matrix Lambert W Function. *Proceedings of the American Control Conference* 2007;5631-36.
21. Yi S, Nelson PW, Ulsoy AG. Feedback control via eigenvalue assignment for time delayed systems using the Lambert W function, in *Proc. 6th International Conference on Multibody Systems, Nonlinear Dynamics, and Control (MSNDC) IDETC, Las Vegas, NV, Sept. 2007;DETC2007-35711* (invited paper).
22. Yi S, Nelson PW, Ulsoy AG. Controllability and Observability of Systems of Linear Delay Differential Equations via the Matrix Lambert Function. *IEEE Trans. Aut. Cont.* 2008;53:3:854-60.
23. Yi S, Nelson PW, Ulsoy AG. Eigenvalues and Sensitivity Analysis for a Model of HIV-1 Pathogenesis with an Intracellular Delay. *ASME Dynamic Systems and Control Conference, Ann Arbor, MI, Oct. 2008;DSCC2008-2408* (invited paper).
24. Yi S, Nelson PW, Ulsoy AG. Analysis and control of time delayed systems via the Lambert W function. *IFAC 2008;13414-19.*
25. Yi S, Nelson PW, Ulsoy AG. Robust control and time-domain specifications for systems for delay differential equations via eigenvalue assignment. *American Control Conference 2008; 4928-33.*
26. Ulsoy AG, Nelson PW, Yi S. Analysis of time delayed systems via Lambert functions. *Proc. 2008 NSF CMMI Engineering Research and Innovation Conference, Knoxville, TN. Jan. 2008.*
27. Pietropaolo M, Surhigh J, Nelson P, and Eisenbarth G. Perspectives in Diabetes, *Primer: Immunity and Autoimmunity, Diabetes*, 2008, pgs 2872-82.
28. Yi S, Ulsoy AG, Nelson PW. Design of observer-based feedback control for time-delay systems with application to automotive powertrain control. *Proc. 2009 ASME Dynamic Systems and Control Conference, Hollywood, CA, Oct. 2009; DSCC2009-2590.*
29. Nelson P, Smith N, Ciupe S, Zou W, Omenn G, and Pietropaolo M. Modeling dynamic fluctuations in type 1 diabetes progression: Quantifying  $\beta$ -cell variation after the appearance of islet marker antibodies, *Mathematical Biosciences and Engineering*, V6(4), 2009, pgs 753-78.

### ***Recent Invited Talks and Collaborations***

2025	Cambridge University – Issac Newton Institute	England
2024	University of Oxford, Center for Mathematical Biology	England
2022	Arizona State University, Mathematical Biology Seminar Series	Tempe, Az
2022	UC Berkeley, Mathematical Science Research Institute	Berkeley, CA
2020	Institute of Mathematics Marseille, Math Biology	France
2018	Society of Mathematical Biology, Annual Meeting	Sydney
2015	Arizona State University, Department of Mathematics	Tempe, Az
2013	Workshop of Diabetes Systems Biology	Toronto
2014	International Conference on Numerical Analysis and Applied Math	Greece
2014	6 <sup>th</sup> World Congress of Industrial Biotechnology	China

### ***Summer Teaching/Mentoring Activities/Outreach***

2024 -	Chief Instructional Office, Cornerstone Educational Group K – 8	Detroit
2017 -	President, Board of Directors for Jefferson-Douglas Academy K-8	Detroit
2021	Math Coordinator for Students Deficient in Math, Lincoln-King HS	Detroit
2015 - 2023	KCP – Summer Connect Precalculus Reviews Summer	LTU
2013 – 2018	Math Coordinator for Circuit Learning’s Detroit Schools Math Improvement Program K-12, - Developing new teaching methods for kids in K-12 in low-income neighborhoods. - Mentoring teachers in the classroom with innovative ways to educate.	
2013	Teaching Director of Osborn Schools Initiative (Detroit Public Schools, 1 <sup>st</sup> – 4 <sup>th</sup> ) - Detroit Public Schools 6-week summer program - Developed teaching methods and mentored tutors for students in 1 <sup>st</sup> – 4 <sup>th</sup> grade	
2011 – 2016	UM Summer Institute 8 Week Bridge course for underrepresented groups - Teach dynamical systems to incoming Ph.D. students - Introduce learning techniques to help the student better prepare for success at the Ph.D. level	
2011	UM - Introduction to Mathematical and Computational Techniques for Informatics and Life Sciences	

### ***Student/Faculty Mentorship***

#### **Supervision of Postdoctoral Fellows**

2003 – 2006	<b>David Bortz, PhD North Carolina State University</b> <i>Current position:</i> Professor of Mathematics, University of Colorado Boulder
2004 – 2007	<b>David Gammack, PhD Oxford University</b> <i>Current position</i> - Deputy Head of School (Education), Director of Programmes at University of Southampton
2010 – 2012	<b>Afi Rawlings, PhD University of Michigan</b> <i>Current position</i> - Accelerating Data & AI Development and Diversity   Executive Director, The South Big Data Innovation Hub   CEO, The Data Career Academy
2011	<b>Sun Yi, PhD University of Michigan</b> <i>Current position</i> - Professor of Mechanical Engineering, North Carolina A&T

#### **PhD/MS Student Advisees (All at University of Michigan)**

2003 - 2005	<b>Stanca Ciupe, PhD</b> <i>Dissertation:</i> Development and Applications of Mathematical Tools in Models of Infectious Diseases and Biological Phenomenon <i>Current position;</i> Associate Professor of Mathematics, Virginia Tech University
2003 - 2005	<b>Jonathan Forde, PhD</b>

- Dissertation:* Delay Differential Equation Models in Mathematical Biology  
*Current position;* Associate Professor of Mathematics and Computer Science, Hobart and William Smith Colleges
- 2006 - 2010 **Sun Yi, PhD (Co-Advisor)**  
*Dissertation:* Time-Delay Systems: Analysis and Control using the Lambert W Function  
*Current position;* Professor of Mechanical Engineering, North Carolina A&T
- 2013 - 2015 **Dingsheng Li, PhD (Committee member)**  
 University of Michigan, School of Public Health
- 2012 - 2014 **James Henderson, PhD (Mentor)** University of Michigan, Statistics  
*Current Position:* Research Associate, University of Michigan Cancer Research Center
- 2010 - 2012 **Nick Comment, MS** Bioinformatics  
*Current:* Private Industry in Boston
- 2008 - 2011 **Michael Simonov, UBM MD** University of Michigan, Residency Yale University  
*Current position:* Medical Information Officer for Research, Yale University

**Undergraduate Student Advisor at University of Michigan (Mentor)**

- 2008 – 2010 **Noah Smith BS University of Michigan**  
 Accepted into MD Program at University of Michigan
- 2009 – 2011 **Michael Simonov BS University of Michigan**  
 Accepted into MD/PhD program at University of Michigan  
*Current position:* Medical Information Officer for Research, Yale University
- 2009 – 2011 **Xiaoyu Shi BS University of Michigan**  
 Accepted into PhD program at UC San Diego
- 2010 – 2011 **Helen Shi BS University of Michigan**  
 Accepted into MD program at University of Michigan  
*Current Position:* Neurologist, Emory University Atlanta
- 2010 – 2012 **Lo-Hua Yuan BS University of Michigan**  
 Accepted into PhD program, Harvard University - Biostatistics  
*Current Position:* Data Scientist Airbnb
- 2011 – 2013 **Natasha Patel-Murray BS University of Michigan**  
 Accepted into PhD program, MIT - Computational Biology  
*Current position:* Investigator at Novartis Institute for Biomedical Research
- 2012 – 2013 **Chris Katanski BS University of Michigan**  
 Accepted into PhD program at University of Chicago – Computational Biology  
*Current Position:* Director, Platform Discovery – hC Bioscience

**Faculty Mentor – Lawrence Technological University**

- |             |                             |  |
|-------------|-----------------------------|--|
| 2019 -      | Professor Matthew Johnston  | Associate Professor (Associate Chair MCS)      |
| 2019 -      | Professor Bruce Pell        | Associate Professor                            |
| 2018 -      | Professor Destiny Anyaiwe   | Associate Professor                            |
| 2018 -      | Professor Paula Lauren      | Associate Professor                            |
| 2018 – 2019 | Professor Mahdi Ebrahimi    | Assistant Professor, now at Cal St. Full.      |
| 2015 – 2018 | Professor Michael Dabkowski | Assistant Professor, now at UM Dearborn        |
| 2014 – 2019 | Professor Na Yu             | Assistant Professor, now at Ryerson University |

**Student Mentor – LTU**

- |             |                   |                |
|-------------|-------------------|----------------|
| 2013 – 2015 | Paul Conlin       | LTU, Math & CS |
| 2013 – 2015 | Kelsey Haener     | LTU, Math & CS |
| 2016 – 2017 | Caleb Stollenburg | LTU, Math & CS |

### ***LTU Administrative Services and Activity***

2025 Dean Search, College of Engineering  
2025 Dean Search, College of Business and Information Technology  
2023 Dean Search, College of Health Sciences  
2020 Provost Search Committee  
2018 Core Curriculum Committee  
2016 Chair, Faculty Hiring Committee  
2015 Chair, math core curriculum  
2015 Chair, Faculty Hiring Committee  
2014 Chair, Faculty Hiring Committee  
2013 Co-Chair, hiring committee  
2012 KCP macro director  
2013 Kern Fellow  
2013 Member, Design Task Force  
2013 Member, Higher Learning Commission  
2012 Member, Graduate Council

### ***Course/Program Development and Supervision***

2022 Introduced research seminar for faculty in the College of Arts and Sciences  
2021 Developed a new program in Data Science  
2015 LTU, Developed a new undergraduate program in Applied Mathematics with focus on Applied Sciences and Actuary Science.  
2013 LTU, New class on Advanced Topics in Applied Mathematics  
2012 LTU, New class in Mathematical Biology  
2011 Bioinf 601, Introduction to Mathematical Techniques for Informatics and Life Science (UM)  
2004 Math 651, Applied PDE's and Multiple Scales  
2001 Math 462, Mathematical Modeling  
2000 Math 463, Mathematical Biology  
1999 Duke University, Mathematical Immunology

### ***Courses taught recently***

2020/2022 Differential Equations, Math Modeling, Probability & Statistics, Dynamical Systems  
2019/2020 Mathematical Modeling, Probability & Stats, Calculus I  
2017/18 Intermediate Algebra, Differential Equations, Prob. & Stats.  
2016 Advanced Mathematics for Engineers, Probability and Statistics  
2015 Differential Equations, Mathematical Modeling, Partial Differential Equations  
2014 Intermediate Algebra, Differential Equations, Probability & Statistics, Calculus I  
2013 Mathematical Biology, Calculus III, Algebra Concepts, Topics course on Delay Differential Eqts.

### ***Earlier experiences and talks (Prior to 2007)***

#### ***Professional Associations***

2007	Board of Directors	Society for Mathematical Biology
2006	Review Panelist, NSF	Mathematical Biology
2005	External PhD reviewer	Arizona State U. and U. Western Ontario
2005	Review Panelist, NSF/NIH	
2004	Assistant Director	Michigan Math and Science Scholars
2004	Associate Editor	Mathematical Biosciences and Engineering

2004	Chair, SMB's annual meeting	
2002	Co-Organizer	Distinguished Lecture Series in Mathematical Biology
2000	Co-Director	UM's Mathematical Biology Research Group
2000	Chairman	First Annual Conference on Mathematical Immunology, Duke University, April 23-26, 2000
1999 - A	Reviewer	Mathematical Biosciences, JTB, JMB, BMB, Physica and D, SIAM and IEEE
1999 -	Book reviewer	Bulletin of Mathematical Biology and Siam Review
1998 -	Visiting Research Scientist,	Los Alamos National Lab.
1998	Co-Organizer	Sixth annual Pacific Northwest Workshop in Mathematical Biology
1998 -	Member	SMB, SIAM, AMS, MAA

***Invited/Contributed Talks (Prior to 2009)***

2008	Lawrence Tech University	Southfield
2006	SIAM Annual Meeting	Boston
2006	Arizona State University	Phoenix
2005	University of Iowa	Cedar Rapids
2005	UM Alumni and Rotary Club	Battle Creek
2004	Michigan State University	Lansing
2004	Society for Mathematical Biology's Annual Meeting	Ann Arbor
2004	AMS Annual Meeting	Phoenix
2003	SIAM Annual Meeting	Montreal
2003	University of Iowa	Cedar Rapids
2002	Arizona State University	Phoenix
2002	University of Michigan	Ann Arbor
2002	Rutgers University	New Jersey
2002	Burroughs Wellcome Meeting	Durham, NC,
2002	Society for Mathematical Biology's Annual meeting	Knoxville
2001	International conference honoring John Jacquez, Oct: Ann Arbor: Arizona State University, December: University of Michigan, April: Applied and Interdisciplinary Seminar Series. AMS/MAA Joint Meeting, Jan.: New Orleans	
2000	University of Michigan, Feb: Department of Mathematics: University of North Carolina, April: School of Public Health: Duke University, May: Workshop on Mathematical Biology	
1999	Arizona State University, April: University of Minnesota, May: Duke University, May: Duke University, Oct	
1998	Washington State University, January: Microbiology Colloquium, Department of Microbiology: Washington State University, January: Mathematics Colloquium, Department of Pure and Applied Mathematics: Pacific Northwest Workshop in Mathematical Biology, March: University of Minnesota Nov: IMA	