Kyle C. Nguyen

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Education

May, 2024	**Doctor of Philosophy, Biomathematics**
	North Carolina State University
	Advisor: *Prof. Kevin Flores*
	GPA: *4.0/4.0*

May, 2019	**Bachelor of Science, Computational Mathematical Science**
	Arizona State University
	Summa Cum Laude
	GPA: *4.0/4.0*

Research Experience

Aug, 2019 - Present	**Graduate Research Assistant**, Flores Lab at NCSU
	Mentor: *Prof. Kevin Flores*
	Languages: MATLAB, Python.

Summer 2022	**Quantitative Research Intern**, Duke University School of Medicine
	Mentors: *Drs. Janice McCarthy* and *Moses Sekaran*
	Language: R.

Summer 2021	**Quantitative Research Intern**, Duke University School of Medicine
	Mentors: *Drs. Janice McCarthy* and *Moses Sekaran*
	Languages: R, MATLAB.

Summer 2020	**Machine Learning Intern**, NASA Langley Research Center
	Mentors: *Drs. Mariano Moscato* and *J. Tanner Slagel*
	Languages: Python, Common Lisp, PVS.

May, 2018 - May, 2019	**Undergraduate Research Assistant**, Arizona State University
	Mentor: *Prof. Yang Kuang*
	Language: MATLAB.

Publications

(* equal contribution)

1. Malik, A. A.*; **Nguyen, K. C.***; Nardini, J. T.; Krona, C. C.; Flores, K. B., Nelander, S. Mathematical modeling of multicellular tumor spheroids quantifies inter-patient and intra-tumor heterogeneity. *submitted*.

2. **Nguyen, K. C.**; Jameson, C. D.; Baldwin, S. A.; Nardini, J. T.; Smith, R. C.; Haugh, J. M.; Flores, K. B. Quantifying fluidization patterns in mesenchymal cell populations using topological data analysis and agent-based modeling. *Math. Biosci.* 2024

3. **Nguyen, K.***; Li, K.*; Flores, K.; Tomaras, G. D.; Dennison, S. M.; McCarthy, J. Parameter estimation and identifiability analysis for a bivalent analyte model of monoclonal antibody-antigen binding. *Anal. Biochem.* 2023.

4. **Nguyen, K.**; Rutter, E. M.; Flores, K. Estimation of parameter distributions for reaction-diffusion equations with competition using aggregate spatiotemporal data. *Bull. Math. Biol.* 2023.

5. Reckell, T.*; **Nguyen, K.***; Phan, T.; Crook, S.; Kostelich, E.; Kuang, Y. Modeling the synergetic properties of drugs in hormonal treatment for prostate cancer. *J. Theor. Biol.* 2021.

6. Phan, T.; **Nguyen, K.**; Sharma, P.; Kuang, Y. The impact of intermittent androgen suppression therapy in prostate cancer modeling. *Appl. Sci.* 2019.

Presentations

Oral Presentations

1. Mathematical Modeling of Multicellular Tumor Spheroids Quantifies Inter-Patient and Intra-Tumor Heterogeneity. *The Triangle Area Graduate Mathematics Conference (TAGMaC)*; March 2024; Chapel Hill, North Carolina, USA.

2. Leveraging topological data analysis for parameter estimation of an agent-based model. *Triangle Computational and Applied Mathematics Symposium (TriCAMS)*; Lighting talk; November 2023; Durham, North Carolina, USA.

3. Quantifying fluidization patterns in mesenchymal cell populations using topological data analysis and agent-based modeling. *The Triangle Area Graduate Mathematics Conference (TAGMaC)*; September 2023; Raleigh, North Carolina, USA.

4. Leveraging topological data analysis for parameter estimation of an agent-based model of collective motion. *10th International Congress on Industrial and Applied Mathematics (ICIAM)*; August 2023; Tokyo, Japan.

5. Parameter estimation and identifiability of bivalent analyte binding model for kinetics data of HIV monoclonal antibody-antigen interaction. *Duke Global Health Discovery Collaboratory Meeting*; January 2023; Durham, North Carolina, USA (virtual).

6. Parameter estimation and identifiability of bivalent analyte binding model for kinetics data of HIV monoclonal antibody-antigen interaction. *Duke Center for Human Systems Immunology Weekly Meeting*; April 2022; Durham, North Carolina, USA (virtual).

7. Bivalent analyte binding model fitting for high throughput kinetics data of HIV mAb-antigen interaction. *17th Annual Duke Center for AIDS Research Virtual Fall Scientific Retreat*; Impact talk; October 2021; Durham, North Carolina, USA (virtual).

8. Lemma suggesting in prototype verification system. *Safety Critical Avionics Systems Branch, NASA Langley Research Center*; August 2020; Hampton, Virginia, USA (virtual).

Poster Presentations

1. Quantifying fluidization patterns in mesenchymal cell populations using topological data analysis and agent-based modeling. *Emerging Directions Workshop, National Institute for Theory and Mathematics in Biology*; February 2024; Chicago, Illinois, USA.

2. Quantifying fluidization patterns in mesenchymal cell populations using topological data analysis and agent-based modeling. *Predictive Modeling in Biology and Medicine Conference*; November 2023; Riverside, California, USA.

3. Leveraging topological data analysis for parameter estimation of an agent-based model. *Triangle Computational and Applied Mathematics Symposium (TriCAMS)*; November 2023; Durham, North Carolina, USA. **Best poster award**.

4. Estimation of parameter distributions for reaction-diffusion equations with competition using aggregate spatiotemporal data. *10th International Congress on Industrial and Applied Mathematics (ICIAM)*; August 2023; Tokyo, Japan.

5. A mathematical model for binding kinetics of binary mixtures of monoclonal antibodies interacting with antigen presenting multiple epitopes. *18th Annual Duke Center for AIDS Research Virtual Fall Scientific Retreat*; September 2022; Durham, North Carolina, USA.

Awards, Honors and Scholarships

Aug, 2021 - Present	**Graduate Research Fellowship**, National Science Foundation (NSF)
2020 - 2023	**H.T. Banks Graduate Award**, North Carolina State University
Jan, 2020 - May, 2020	**NSF Mathematical Biology Research Training Group Fellowship**, North Carolina State University
Aug, 2019 - May, 2020	**Lucas Best First Year Student**, Biomathematics Graduate Program, North Carolina State University
Aug, 2019 - May, 2020	**Center for Research in Scientific Computation Fellowship**, North Carolina State University

Teaching, Leadership, and Mentoring Experience

May, 2023 - Jul, 2023	**DRUMS Mentor Assistant**, North Carolina State University Helped mentoring a group of 4 undergraduate students.
Aug, 2021 - May, 2023	**Mentor**, AMS MentoRing Mentored first year graduate students through AMS MentoRing program organized by AMS Graduate Student Chapter at NCSU.
Aug, 2020 - May, 2023	**Mentor**, Undergrads Union Grads Mentored undergraduate students through Undergrads Union Grads program organized by the NCSU Math Department.
May, 2021 - May, 2022	**Treasurer**, Biomathematics Graduate Student Association Handled and kept track of the finances.
Aug, 2019 - May, 2021	**Graduate Teaching Assistant**, North Carolina State University Led three weekly Calculus III recitation sessions for over 100 students. Hold weekly office hours. Wrote and graded weekly homework. Graded exams and provided detailed solutions.
May, 2019 - Jul, 2019	**REU Mentor Assistant**, Arizona State University Helped mentoring a group of 4 undergraduate students.
Aug, 2018 - May, 2019	**Lead Mathematics Tutor**, Arizona State University Managed the mathematics tutor team within the tutoring center. Prepared and hosted content training for tutors. Collaborated with other leads to develop professional development training and virtual training for tutors.
Jan, 2018 - Aug, 2018	**Mathematics Tutor**, Arizona State University Guided students through math, computer sciences, chemistry and physics questions, helped them understand the concepts of the subjects. Assisted lead tutor during math content training.

Certificates

Data Science Math Skills, Coursera

Professional Associations

American Mathematical Society (AMS)
Models of Infectious Disease Agent Study (MIDAS)
Society for Industrial and Applied Mathematics (SIAM)

Professional Outreach and Service

Reviewer: Journal of the Royal Society Interface
 Seminar: NSF GRFP Success Strategies: Writing Effective Essays at Biomathematics Seminar

Technical Skills

Programming Languages :   MATLAB, Python, R
Frameworks and Libraries :   PyTorch, Keras, Tensorflow, Scikit-learn, Pandas
Others :   Prototype Verification System.