NICK KONZ

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EDUCATION

Duke University | Durham, NC *Expected December 2025*
Ph.D. in Electrical and Computer Engineering (Machine Learning Specialty) *Cumulative GPA: 4.000/4.000*

University of North Carolina | Chapel Hill, NC *Graduated May 2020*
B.S. in Astrophysics and B.A. in Mathematics *Cumulative GPA: 3.914/4.000* *Earl Nelson Mitchell Scholar in Physics*
Honors: *Highest Honors and Highest Distinction* *Phi Beta Kappa* *Honors College Member*

RESEARCH EXPERIENCE

Mazurowski Lab | Duke University Dept. of Radiology | Durham, NC *2021 - PRESENT*
Graduate Research Assistant
Ph.D. research in deep learning with a focus on medical image analysis. Specific fields include anomaly detection, domain adaptation and style transfer. Model conception and development, codebase development and experimentation (Python/PyTorch), and paper publication.

Reichart Lab/Skynet Robotic Telescope Network | UNC-CH Dept. of Physics and Astronomy | Chapel Hill, NC *2017 - 2020*
Research Assistant
Undergraduate research and thesis work of statistical computational methods for astronomy. Included the continued development and deployment of the TRK (Trotter-Reichart-Konz Regression) and RCR (Robust Chauvenet Rejection) statistical modeling suites. Codebase development, end-to-end web interface development, and writing associated papers and documentation for publication.
Robert Shelton Award for Outstanding Research (2019) *NC Space Summer Research Grant (NASA) (2019)*

TEACHING EXPERIENCE

Duke University | Durham, NC *2022*
Graduate Teaching Assistant
ECE 685D/COMPSCI 675D: Introduction to Deep Learning.

UNC Chapel Hill | Chapel Hill, NC *2017 - 2018*
Undergraduate Teaching Assistant
PHYS 119 (Introductory Electromagnetism), MATH 528 (Math. Methods for the Physical Sciences), and MATH 233 (Multivariable Calculus).

ERIRA (UNC Chapel Hill/Green Bank Radio Observatory) | Chapel Hill, NC *2017 - PRESENT*
Educator/Coordinator
One of the educators of participants in ERIRA, a yearly week-long intensive radio astronomy research program led by Dr. Daniel Reichart of UNC Chapel Hill. Participant of the 2017 session.

SELECT PUBLICATIONS

1. **Konz, N.**, et al. "The Intrinsic Manifolds of Radiological Images and their Role in Deep Learning." *The International Conference of Medical Image Computing and Computer Assisted Intervention (MICCAI)*, **2022**.
2. Swiecicki, A., **Konz, N.**, et al. "A generative adversarial network-based abnormality detection using only normal images for model training with application to digital breast tomosynthesis." *Scientific reports 11.1: 1-13*, **2021**.
3. Maples, M. P., Reichart, D. E., **Konz, N. C.**, et al. "Robust Chauvenet Outlier Rejection." *The Astrophysical Journal Supplement Series 238.1: 2*, **2018**.

GENERAL TECHNICAL SKILLS

Technological:	Machine Learning and Deep Learning, Algorithms, Numerical Methods, Monte Carlo Methods
Analytical:	Statistical Modeling, Data Analysis, Bayesian Analysis
	Research, Problem-Solving, Scientific Writing, Software Documentation and Publishing
Specific Computer Skills:	PyTorch, C++-to-Python Wrapping

SPECIFIC COMPUTER SKILLS

Proficient with:	Python (5 yrs.), C++/C (3 yrs.), LaTeX (5 yrs.)
Experienced with:	JavaScript, HTML/CSS (2 yrs.), Microsoft Excel
Familiar with:	Unix, Wolfram/Mathematica Language, Vim