

# Soo Min Kwon

---

CONTACT INFORMATION	Phone: (201) 421-8064 Email: <a href="mailto:smk330@scarletmail.rutgers.edu">smk330@scarletmail.rutgers.edu</a> Google Scholar: <a href="https://scholar.google.com/soominkwon">scholar.google.com/soominkwon</a>	Github: <a href="https://github.com/soominkwon">github.com/soominkwon</a> Website: <a href="https://soominkwon.github.io">soominkwon.github.io</a>
RESEARCH INTERESTS	Convex & non-convex optimization, multi-dimensional (tensor) data analysis, differential privacy, distributed learning	
EDUCATION	<b>Rutgers University</b> M.S., Electrical and Computer Engineering • Thesis: Optimization Problems with Low-Dimensional Tensor Structure • Advisor: Prof. Anand D. Sarwate	New Brunswick, NJ Sept. 2020 – May 2022 (Expected)
	<b>Rutgers University</b> B.S., Electrical and Computer Engineering • Minor: Mathematics • Thesis: Learning Predictors from Multidimensional Data with Tensor Factorizations • Advisor: Prof. Anand D. Sarwate	New Brunswick, NJ Sept. 2016 – May 2020
RELEVANT COURSEWORK	<b>Graduate:</b> Optimization Methods for Machine Learning, Convex Optimization, Detection & Estimation Theory, Stochastic Signals & Systems, Machine Vision, Information Theory <b>Undergraduate:</b> Linear Algebra, Machine Learning for Engineers, Linear Systems & Signals, Digital Signals Processing, Linear Optimization	
ACADEMIC EXPERIENCE	<b>Teaching Assistant</b> Rutgers University • Currently a Teaching Assistant for Introduction to Computers for Engineers (MATLAB) with approximately 500 students • Served as a Teaching Assistant for Digital Signal Processing for Prof. Waheed Bajwa with approximately 100 students • Served as a Teaching Assistant for Linear Systems and Signals with approximately 50 students	Jan. 2020 – Present New Brunswick, NJ
	<b>Graduate Research Assistant</b> Rutgers University • Currently conducting research in exploiting low-dimensional tensor structures on different types of optimization problems • Previously researched in distributed differential privacy – a private framework in which multiple sites can collaborate to learn under sensitive data	May 2020 – Present New Brunswick, NJ
	<b>Research Intern</b> Wireless Information Network Laboratory • Performed data collection and pre-processed millimeter-wave sensor data for Convolutional Neural Networks to infer the type of activity performed • Results were presented in the WINLAB Symposium, MIT Undergraduate Research Conference, IEEE DySPAN 2019, and ECE Research Day 2019 • Lead author to publication for demonstration at an IEEE conference	May 2019 – Sept. 2019 North Brunswick, NJ

PUBLICATIONS	<ul style="list-style-type: none"> <li>* <b>S. Kwon</b>, X. Yang, A. D. Sarwate. “Low-Rank Phase Retrieval with Structured Tensor Models.” Submitted to International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022.</li> <li>* D. K. Saha, V. D. Calhoun, Y. Du, Z. Fu, R. Panta, <b>S. Kwon</b>, A. D. Sarwate, S. M. Plis. “Privacy-preserving quality control of neuroimaging datasets in federated environments”. Submitted to Organization for Human Brain Mapping (OHBM), 2021.</li> <li>* <b>S. Kwon</b>, A. D. Sarwate. “Learning Predictors from Multidimensional Data with Tensor Factorizations”. In Rutgers University Aresty Undergraduate Research Journal, 2021.</li> <li>* <b>S. Kwon</b>, S. Yang, J. Liu, X. Yang, W. Saleh, S. Patel, C. Mathews, Y. Chen. “Demo: Hands-Free Human Activity Recognition Using Millimeter-Wave Sensors”. In IEEE International Symposium on Dynamic Spectrum Access Networks, 2019.</li> </ul>
POSTER PRESENTATIONS	<ul style="list-style-type: none"> <li>* D. K. Saha, V. D. Calhoun, Y. Du, Z. Fu, R. Panta, <b>S. Kwon</b>, A. D. Sarwate, S. M. Plis. “Visualizing Neuroimaging Data Located at Different Sites with Privacy Guarantees”. Presented in Organization for Human Brain Mapping (OHBM), 2021.</li> <li>* <b>S. Kwon</b>, A. D. Sarwate. “Learning Predictors from Multidimensional Data with Tensor Factorizations”. Presented in J.J. Slade Honors Research Presentation, 2020.</li> <li>* <b>S. Kwon</b>, A. D. Sarwate. “Tensor Regression with Applications in Neuroimaging Data Analysis”. Presented in ECE Research Day, 2019.</li> <li>* <b>S. Kwon</b>, S. Yang, X. Yang. “Hands-Free Human Activity Recognition Using Millimeter-Wave Sensors”. Presented in MIT Undergraduate Research Technology Conference, 2019.</li> <li>* <b>S. Kwon</b>, S. Yang, J. Liu, X. Yang, W. Saleh, S. Patel, C. Mathews, Y. Chen. “mmWave-based Human Activity Recognition”. Presented in IEEE International Symposium on Dynamic Spectrum Access Networks, 2019.</li> </ul>
WORK EXPERIENCE	<p><b>Data Science Intern</b> May 2020 – Aug. 2020</p> <p>WellCare Health Plans Remote</p> <ul style="list-style-type: none"> <li>• Automated the process of detecting expedition phrases in healthcare forms using Restricted Boltzmann Machines in Tensorflow</li> <li>• Designed and optimized several machine learning algorithms (Support Vector Machines, Logistic Regression, XGBoost) for statistical inference on diseases given pharmacy data</li> </ul>
AWARDS	<ul style="list-style-type: none"> <li>* Rutgers ECE Outstanding Teaching Assistant Award 2021</li> <li>* Rutgers ECE Departmental Leadership &amp; Service Award 2020</li> <li>* Rutgers WINLAB GA/TA Grant 2020 – 2020</li> <li>* James J. Slade Honors Scholar 2019 – 2020</li> <li>* Rutgers University Dean’s List 2018 – 2020</li> </ul>
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li>* <b>Programming Languages:</b> Python, MATLAB, SQL, C++</li> <li>* <b>Libraries:</b> Tensorflow, Scikit-learn, NumPy, SciPy, Pandas, Matplotlib</li> <li>* <b>Software:</b> Git, Visual Studio, Tableau, Jupyter Notebook, Microsoft Office, L<sup>A</sup>T<sub>E</sub>X</li> </ul>
CERTIFICATES	<p><b>Neural Networks and Deep Learning</b> (License #M6TYH2SFB6QV, by Andrew Ng, Coursera)</p>