



DEPARTMENT OF MATHEMATICAL SCIENCES  
O-116 Martin Hall  
Martin Hall, Box 340975  
Clemson University  
Clemson, SC 29634-0975  
864-656-2883 FAX 864-656-5230  
petersj@clemson.edu

January 9, 2018

Department of Mathematical Sciences  
Clemson University

Dear Sir or Madam:

I am happy to wholeheartedly recommend Patrick Kane for our undergraduate student award.

I have taught Patrick three courses and he is currently working for me on undergraduate research for my Army grant. I first taught him MATH 3110 and then the two semester sequence MATH 4530 and MATH 4540. I teach these courses in a thorough and demanding way and Patrick did a fine job in all three. The version of MATH 3110 he took from me was more theoretical and was designed for a math major audience.

He does very well with theory and I have encouraged him to learn as much and as deeply as he can in various ways of thinking about problem solving. I can ask him to look at something and he will invariably come back the next meeting not only having read and absorbed what I asked but also doing more on his own. This is truly remarkable for any student, graduate or undergraduate.

After his course work with me, I asked him to do undergraduate research with me as part of my Army grant. His task was to develop some simulation tools in NetLogo to support models of autoimmune disease. We would meet two times a week to discuss the bones of the project and then he would implement. Patrick on his own had embraced programming by taking a course in C and then in MATH 3110 I used MatLab extensively. I then used MatLab in both the analysis courses. He was quick to learn that MatLab was a great prototyping tool.

NetLogo is a very different pseudo language and it is very wordy and the underlying data structures are strangely accessed. However, it does visualization quite well. Patrick learned how to write effective simulations during Summer and Fall 2017 and how to document nicely. On his own, he also read and found papers of autoimmune disease that used NetLogo for visualization which we were able to discuss. In the Spring of 2018, he will be developing further simulations using a model of T cell and pMHC interaction I've developed and work on a small scale model of T cell generation.

He started his NetLogo work in the summer of 2017 while he was doing an unpaid stint on data analytics for the Athletic Department's football program. Patrick helped to collect data from the many real time devices attached to the players. This work was essentially not mentored and he was left to his own devices. So with all this data coming in, Patrick looked at it and decided to build a few regression models for some salient variables and then show the coaching staff how this might be helpful. He also on his own wrote up a white paper about it. This shows incredible initiative!

During his job search in Fall 2017, this white paper and his programming experience made him stand out. He had several job offers and settled on one with TIAA- CREF for data analytics in the financial arena. On his second interview with TIAA-CREF, an hour had been allocated for his chat and as soon as Patrick pulled out his white paper to show the interviewer what he had done, the interviewer said "That's it. You're in.". They spent to rest of his allocated hour talking about sports.

Patrick has great drive and initiative. He is exactly the kind of thinker we want to produce in our program and he should be rewarded for his outstanding creativity.

Please do not hesitate to contact me further if you need any more information.

Sincerely,

A handwritten signature in cursive script that reads "James K. Peterson". The signature is written in a dark ink and is positioned above the printed name.

James K. Peterson  
Associate Professor