Michael Moore   web: *http://www.hardworkin-man.com/*   michael.moore@nasa.gov

Statement of Purpose
of Michael Moore (EECS MS/PhD applicant for Fall—2015)

1-1.5 pages single spaced. Don't have time to drone on and on. You gotta give short hard hitting summaries of skills and preferably examples indicating your motivation and skills.

Part 1: Introduction Introduce yourself, your interests and motivations Tell them what youre interested in, and perhaps, what sparked your desire for graduate study. This should be short and to the point; dont spend a great deal of time on autobiography.

- Introduce myself and quick overview of my background and general interests. - Aerospace Engineer, particularly interested and skilled in computers. 4 years of work exp. - Engineering is not just a job to me, it's a lifestyle. I have always been involved in engineering hobby projects. Some of which I will highlight in this statement of purpose. - I understand that continuing education is critical in order for me to get to where I want to be in the engineering field. I want the oppurtunity to dedicate my attention to formally learning advanced engineering concepts and understanding the state of the art in the field of embedded systems and control. - UC Berkeley is the best fit for my educational goals.

Part 2: Summarize what you did as an undergraduate

- My undergraduate degree is in aerospace engineering. I have a strong background in modelling system dynamics and implementing control schemes. - Unlike other aerospace engineers, I often would seek out projects that involved large amounts of programming, and robotics and control. - Joined the JSC Trick initiative. - Joined the CSR. Learned Linux and C. - My senior design project. I wrote code to model the thermodynamics of a robotic mission entering Venus' atmosphere. We presented to a large group of people in industry. My software model was of particular interest to JPL. Based on my presentation, they flew me out to Pasadena to interview. In the end, I took a job in Houston at L3 Stratis, who specialized in modeling and simulation work for JSC. - Additionally I have taken several night courses as part of a masters program at UHCL. My goal was to transfer once I learned enough to feel confident in electrical engineering concepts and robotics/control. - I also currently work with a friend and graduate student at Texas AM to build a custom quadcopter flight controller. We currently use it as a test bed for control systems research. I have provided additional supporting documentation on some of the aspects and my contributions to the design. Including succesful flight test videos.

Part 3: If you graduated and worked for a while and are returning to grad school, indicate what youve been doing while working. You can discuss your company, work/design team, responsibilities, what you learned, etc. You can also indicate here how this helped you focus on your graduate studies.

Have been working at L3 for four years. Started out doing modeling and simulation work for NASA's Orion vehicle. I worked with my mentor Jason Harvey to help design and create a nodal network solver that went on to become the underlying solver architecture for the majority of the vehicle simulation's electrical, thermal, and life support systems. After successfully demonstrating early working versions of this nodal network solver, I was moved to a small team who was tasked in demonstrating some of the software architecural principles for the Orion simulation that NASA was beginning to invest in. Before committing to a large investment, NASA wanted to verify that the architecture being proposed would scale to a fully integrated Orion vehicle simulation. To meet these ends, I was moved to a small team that was tasked with demonstrating the software architecture on a simulation of the Japanese HTV. The simulation was to be used to train flight controller's that were training for the Visiting Vehicle Officer position within NASA JSC's well known Mission Control Center. This project ended up being a large success, and demonstrated that our solver architecture could adequately simulate a spacecraft's electrical, thermal, and life support systems. NASA went on to use our software architecture for simulations of not only the Orion vehicle, but also the International Space Station. These simulations were developed for the purpose of training NASA flight controllers, but NASA understands the value of quality software models. After the HTV project, I was moved into the simulation team within JSC's Advanced Exploration Systems. This project was intended to evaluate the use of our software to aid in the design of future NASA vehicles. Specifically proposed vehicles for deep space and Mars missions. This is the team I am currently on. The project manager for our team, Dr. Edwin Crues, is a skilled and ambitious leader with the goal of impacting the design of NASA's future Mars mission early on in the design life cycle. Our team builds software models of the current state of the vehicle design. NASA uses our software models to conduct trade studies to evaluate the design in the context of a

given mission architecture. In particular, I am the modeling and simulation lead for the thermal, electrical, and life support subsystems. This project has been great experience for me, and it is by far the best team I have worked with at NASA. My work, along with the rest of our teams work, has been demonstrated and well received at the highest levels of NASA, including Dr. Jim Green, NASA's Planetary Science Division Director, and the NASA administrator, Charlie Bolden.

Part 4: Here you indicate what you want to study in graduate school in greater detail. This is a greater elaboration of your opening paragraph. Indicate area of interest, then state questions you might have which are associated with the topic, i.e., what you might be interested in studying. You should have an area of emphasis selected before you write the statement. Call the department or look on the web for information about the professors and their research. Are there professors whose interests match yours? If so, indicate this, as it shows a sign that you have done your homework and are highly motivated. (Be sincere, however, dont make up something bogus just to impress people.)

- Describe why and wtf you are doing at UHCL. Free paid for education by my company. Remember how I said I love this stuff. This is how I spend my free time. Night classes at the closest university. Taking advantage of my companies continuing education benefit. It has never been about the master's degree. I just needed to learn some new things in order to build my hobbyist robotics projects.

- Wireless sensor systems and communicaiton networks as input to high level controllers that control based on machine learning concepts. - Describe your IMU swarmlet idea. - List a few other ideas.

Part 5: Conclusion End your statement in a positive and confident manner with a readiness for the challenges of graduate study.

Conclusion - I truly don't want this thing to be super long and go unread, but I have only talked about a few of my major projecst. I have so many other things going on in parallel. I do inde game development. I contribute to open source projects. I enjoy web-app development and cloud based computing. I have written back-ends for we

UC Berkeley is an ideal school for me.

extra stuff.

Example of WRS. Co author and submitting a paper to ICES conference. I'm supplying all of the data/plots/analysis work. The other co-author is a design expert and he's providing the context and potential application of high fidelity simulations to aid in NASA's design process.

- I know how to track down funding. In my job I often help present to higher up NASA HQ people in order to get funding. I wasn't always comfortable with public speaking, but my job has forced me to get good at it. I know the value of this skill, and it's a rarity among graduate engineering students. I can present at conferences. I can clearly describe the work that's being done and why it's important. I can help attract new grants/fudning oppurtunities. I have done it at my job at NASA.

- I have practical engineering experience. I know how to write software on a team. I know how to architect software and the importance of testing. I have solved several critical integration problems at work. I know how to work late into the night and get shit done. I know how to manage my time, and not waste effort in unfruitful areas.