My motivation for pursuing graduate studies in complex adaptive systems stems from an undergraduate research project in crowd simulation. I worked with faculty of the Industrial and Chemical Engineering departments at the Indian Institute of Technology Kanpur where I calibrated popular crowd models against Indian data to test how robust they were to different customs and cultures. Seeing how simple rules can give rise to complex behavior, paired with long conversations with my mentor about the work of the Santa Fe Institute primed my interest in complexity science.

Several years later, after graduating and getting a job as a site-reliability engineer at a large technology company, I attended a complexity conference in San Francisco. I met several PhDs and industry professionals and together we formed an independent working group, eventually applying for a military grant. We were interested in applying complexity science techniques to physiological data collected from publicly available wearable devices. Because no two of our six members were from the same field, our conversations were incredibly stimulating. I was captivated by the specificity and extent of the complexity research I encountered during the early stages of our work: from journals on fractal physiology to thousands of citations on dynamical neuroscience, I knew then that there would be endless avenues to satisfy my interests in the field.

In my industrial engineering curriculum, I found courses like operations research, systems simulation, and machine learning the most intriguing. This interest led me to work with Dr. Sergiy Butenko of Texas A&M to investigate how the ratings of 700 popular movies relate to the global structural properties of their character graphs. Beginning with initial conditions and working towards desired outcomes challenges my creativity and I enjoy applying the probabilistic, computational, and optimization techniques in my courses to real-world problems.

One of my favorite opportunities in my B.S. was helping a professor teach his course. I liked that I could be an approachable aid during office hours or when I held exam review sessions. This inspired me to enroll in Big Brothers Big Sisters, a program in the US that matches underprivileged high school students with a college-educated mentor. As a master’s student at Chalmers, I hope to serve as a teacher or research assistant where I will have a dedication towards education and service to all.

In my current role, I developed a proactive reputation at Apple, creating many automation scripts that reduce labor and increase insight into the health of our clusters and technologies. With no formal training on the technologies, these skills were attained through cultivated relationships with subject matter experts and sweat equity. In both industry and academia, statistics, insight, and prediction and control are where my primary interests lie, and by eagerly seeking out areas for advancement I will be well-equipped to handle the academic and research stresses of the CAS program.

One of my criteria while exploring graduate studies was a formal complex adaptive systems program. I want to be surrounded by complexity-inclined researchers from many disciplines, as opposed to a handful of faculty with only general interest in the area. Chalmers satisfies this criterion well with its wide-reaching and extensive number of active researchers and faculty. Additionally, collaborations across the Atlantic are valuable and studying in Europe will leave me with propitious academic connections and potential research partners.

By studying and conducting research at Chalmers, I hope to set myself up for maximal fulfillment in further studies through publishing several peer-reviewed papers. After graduate studies I plan to begin the professorship journey towards tenure. Having been fortunate to spend a year living abroad I am open to working in any culture or society where my ambitions are likely to be realized.Living and working in Sweden after graduation would certainly an opportunity.

Although I am open to a variety of research, there are several professors in the CAS program whose projects are especially appealing to me: Kristian Lindgren (information theory and agent-based economics), Kolbjörn Tunström (swarming and nonlinear dynamics), and Claes Andersson (wicked societal systems). Studying these professors’ papers has given me a sense that Chalmers’ MSc CAS program is a great match for my interests and future ambitions.

<https://www.chalmers.se/en/education/application-admission/required_documents/Pages/required%20documents.aspx#punkt8>

**SCRATCH**

**Interests and skills:**

I want to pursue a MSc in Complex Adaptive Systems, and my career aspiration is to become a professor. My research interests include game theory and human behavior, statistics, and graph and information theories applied to physiology, the social sciences, and economics.

1. **Why CAS at Chalmers**:

State the reason why you have chosen a specific Master's programme, and also why you have chosen Chalmers University of Technology

1. **Connection to previous studies:**

Explain the connection to your current studies in your choice of programme.

1. **How interests/skills contribute to success:**

How will your interests and skills contribute to your success as a Master's student at Chalmers

1. **What I hope to gain:**

What you hope to gain by being admitted?

1. **Career and societal expectations:**

What are your expectations for your future career and for the society where you will practice your profession?