

# Khalil Al Handawi, PhD

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Siemens Digital Industries Software  
East Lansing, MI, United States Of America  
Re: Senior Software Engineer (SISW) application

Dear HEEDS team manager,

I would like to express my enthusiasm and excitement for the opportunity to be a part of Siemens digital industries and work with leading industry experts on developing cutting-edge simulation and computational solutions. I have learned about this position through my colleague, Dr. Ahmed Bayoumy from the HEEDS team.

I believe that my experience during my doctoral studies is well-aligned with the work being done at HEEDS and the role that I would be filling. My PhD dissertation focused on surrogate modeling and surrogate-based optimization to help explore large design spaces with relatively low computational effort. I also used advanced data visualization tools such as parallel coordinates and 2D projections of high-dimensional hypersurfaces to communicate results. This work resulted in a set-based design toolbox for my industrial collaborators at GKN Aerospace, Sweden.

I also worked on public health projects during my doctoral studies and developed an epidemiological simulation application for predicting the trajectory of the pandemic. The simulation was interactive and employed a Qt user interface for displaying results and allowing the user to assess the impact of different public health policies in realtime. The computations were accelerated using the CUDA C++ API.

I am also very excited for the opportunity to work with a diverse range of products and projects within HEEDS and collaborate with a multidisciplinary team. My lab specializes in multidisciplinary design optimization for coordinating the engineering activities of multidisciplinary teams and organizations. I am also very interested in providing training workshops and modules for the features that I develop at HEEDS as part of such interdisciplinary collaborations.

Although I am happy with my current job working as a researcher at McGill and coming up with my own research ideas, guiding and supervising students to make their ideas a reality, I wanted to explore something different that I could only find at Siemens. That is the opportunity to work with a multidisciplinary team and bring people's ideas together.

I believe that my strong mathematical and simulation skills, experience in software development, and understanding of the industry's simulation needs will add a lot of value to the development efforts of the HEEDS team. I hope you enjoy going through my profile and my projects on my website (<https://khalhandawi.github.io/projects/>) and I hope we can discuss all of this. Needless to say, I am a huge fan of the technologies and products of Siemens digital industries on which I based my doctoral studies. I feel that this passion will push me far beyond my abilities.

Yours sincerely,

Khalil Al Handawi

