Bharatesh Chakravarthi, Ph.D.,

Research Scholar, Virtual Environments Lab, GSAIM, Chung-Ang University, Seoul
Website | email: chakravarthi589@gmail.com

Motivation Letter

Dear Professor,   May 23, 2022

I am writing to apply for the Research Software Engineer position at your institution as advertised on your institution's website. I am currently a research scholar at Virtual Environments Lab, Department of Computer Graphics and Virtual Reality, the graduate school of Advanced Imaging Science, Chung-Ang University, Seoul. I completed my Ph.D. degree requirements in May 2022. Therefore, I am highly interested in obtaining a research software engineer position at your esteemed research group, where I can contribute to its focus on data science research and development.

My research practice at Virtual Environments Lab (2018-Till date) and five years of working as an assistant professor at engineering education institutes (2013-2018) have prepared me to be an influential researcher. In consultation with Prof. Chai Young Ho, my doctoral dissertation investigates the proxemics-based pervasive interaction for wide-area and high-speed serial motion recognition. During my research, I was involved in major funded projects which have helped me acquire software development skillsets. The following are some of the projects I have worked on.

- ***IMU Sensor-based Human Motion Synthesis Framework.***
  Objective: A GUI-based application system to interactively author realistic human motion, kinetically edit sensed motion data, and motion reconstruction using 3D humanoid models.
  Development Environment: C++, Qt, VTK, Xsens Awinda IMU sensors

- ***Design and Development of an Open-Source Tool for Human Motion Visual Analysis.***
  Objective: A Visual means to represent human motion as a trajectory over a 3D-Sphere and human motion decomposition.
  Development Environment: C++, OpenGL, VTK, Xsens Awinda IMU sensors, and Perception Neuron

- ***Pilot Experiment on Quaternion-Based 3D Gesture Tracking.***
  Objective: An Intuitive means to represent human motion as an equirectangular projection over a 2Dplane using the UV-mapping technique.
  Development Environment: C++, VTK, and Xsens Awinda IMU sensors

- ***An Open-Source Platform for Human Pose Estimation.***
  Objective: Heterogeneous Multi-Sensor system for pose tracking and estimation
  Development Environment: C++, VTK, and Xsens Awinda IMU sensors, Ouster OS1 Lidar

An intuitive 3D visualization tool called Motion-Sphere was designed and developed to recognize and analyze various human activities. This work was made publicly available over GitHub to the user community. I have contributed to Open-Source projects such as Visualization Toolkit (VTK) powered by Kitware ® Technologies.

With my research experience, am capable of independently developing software application systems and am well aware of version control and issue tracking over platforms like GitHub. With a great interest to contribute to the academic and research community, I have involved myself in research article reviews, technical talk delivery, project mentoring for undergraduate students, and consistent participation in various technical skill development programs. undergraduate students, and consistent participation in various technical skill development programs. These practices have always led me to be on a learning curve and have built my confidence to take up new challenges and research assignments.

I was fortunate to publish and present a few of my novel works in journals and conferences. I also aspire to continue timely research publications at journals and conferences such as IEEE Access, Sensors, Applied Sciences, IEEE VR, ACM SIGCHI, and so on.

Thus, with all my research and academic experience so far, I am confident to continue my research at your esteemed institute and contribute to my best. It would be an excellent opportunity to join your reputed research group to further shape my career alongside eminent peers. Therefore, I am enclosing my curriculum vitae for your consideration. If you require any additional information or documents, I will be happy to provide them.

Sincerely,
Bharatesh Chakravarthi