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

Motivation Letter

Respected Professor, May 24, 2022

Thank you for your reply and kind consideration. I sincerely request to reconsider my application and evaluate my suitability for the postdoc position at your esteemed research group.

After thorough reading and understanding, the computational methods and principles for online adaption of interfaces research stream greatly interest me to take up a postdoc fellow position.

Although superficially my current research might not look like a straight fit. However, I would like to emphasize my high level of interest in joining your group on the following grounds.

Experience in research areas in line with Computational Interaction Group:

I am a recent Ph.D. graduate in computer graphics and virtual reality. During my research, I have had hands-on experience in handling a few user-interaction devices such as VIVE HMD, base stations, controllers, and pupil labs eye tracker. I was a part of a major project on an Eye-Gaze-guided active immersive UAV camera.

Technical Competencies in research areas in line with Computational Interaction Group:

I am one of the top contributors to the visualization toolkit (VTK), an open-source project supported by Kitware® Technologies and hosted on Github. I have a fair amount of knowledge to find intuitive ways to visualize data. I was part of a major project to visually analyze subtle variations of IMU-based Motion Captured data in real-time. I recently completed Google Data Analytics Specialization Certification authorized by Google

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

Programming Languages skills required for software development at Computational Interaction Group:

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. I have expertise in API development using C++. I am comfortable using web development toolkits to build and maintain web interfaces using HTML, Javascript, and PHP-MySQL to connect to databases. Familiar with Autodesk 3ds Max character animation, FBX API, and Blender for 3D Modeling (basic). During my previous research, I developed an application system to author and edit human motion data. It comprises several modules such as virtual avatar-based motion reconstruction, motion retargeting, and 3D Sphere-based human motion visualization.

Language proficiency and presentation skills:

I was fortunate to publish and present a few of my novel works in journals and conferences such as IEEE Access, Sensors, Applied Sciences, IEEE VR, and ACM SIGCHI. 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.

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.

Sincerely,
Bharatesh Chakravarthi