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School of Computer Science
University of Nottingham
Jubilee Campus
Wollaton Road
Nottingham, NG8 1BB

Dear Admissions Committee,

I am writing to apply to the Ph.D program in the School of Computer Science at the University of Nottingham, which I learned about from my potential supervisor, Prof. Michel Valstar at the Computer Vision Lab. Currently, I am a research assistant in Institute of Computer Vision at Shenzhen University, and I am also working for industry as a computer vision engineer. My intellectual curiosity and passion for computer vision and machine learning drive me to become a first-class researcher. It is essential for me to work in a top-notch institution with outstanding researchers. The Ph.D program in the University of Nottingham would be an ideal place to pursue my academic dream.

My research interest broadly lies on deep learning and its applications on computer vision, specifically focus on how to make breakthrough in facial recognition by deep representation learning. For the past two years, I have worked on relevant projects that provided necessary academic training for me to be a researcher. My previous work on sparse representation based classifier and deep learning achieved competitive performance on face recognition with single sample per person, which was a part of my bachelor thesis and published in *Pattern Recognition*. Recently, our work achieved the best facial expression recognition performance on CK+ dataset by leveraging the power of deep metric learning. In the meantime, I am working for a computer vision startup, utilizing state-of-the-art CNN acceleration approaches to make our deep learning-based face recognition models work on real time applications. Our products has been successfully deployed to a number of security systems including the access control system used by Shenzhen Government. These industry experiences provide me with a much different perspective, so that I can think about the practical side when doing research in computer vision.

In my future research, I am willing to extend my study from *how to learn a better representation* to *how to understand deep visual representation*. My long standing concern about cognition science drive me to take related courses during my undergraduate study, affecting on my research interest to a certain extent. Though I cautiously think of any analogy between human brains and deep neural network, I am extremely obsessed with their potential similarity from computational perspective, i.e., how does black-box learning system convert stimulus to its semantic representation. I would like to answer this question from computer vision approach, especially by facial recognition, since the rich semantics and attributes of human faces make them an ideal subject for studying the interpretability of deep neural network. I hope my future study would stretch the boundaries of what we know about deep learning, and eventually apply the new knowledge to solve computer vision problems.

As far as I know, the University of Nottingham is an ideal place for me to achieve my academic goal. My potential supervisor, Prof. Michel Valstar is a world's leading expert on facial computing, especially on facial expression recognition. I am really looking forward to work with Prof. Valstar. I believe it would be a fascinating experience to study under his supervision, work together on cut-edge problems in facial recognition, and produce influential research output.

Thank you for your time and consideration.

Sincerely,

Guohang Zeng