To Whomever It May Concern

I am glad to write about Pushpak Baviskar, applying for the IIT-Kharagpur-University of Manchester Joint Ph.D. program. I had known him for the past year when he started his summer internship under my supervision. Further, we have collaborated on extending the same internship project into a master's thesis.

Pushpak is about to complete his master's from the School of Habitat Studies at Tata Institute of Social Sciences (TISS), Mumbai, India, specializing in Urban Policy and Governance. I am personally intrigued by his journey from a bachelor's in civil engineering from one of the leading engineering schools in India to a social science domain. This cutting-edge integration of engineering and social sciences has put him in a unique position to undertake advanced quantitative research and apply the insights for efficient decision and policymaking. Through our many interactions, I got the sense that Pushpak is passionate about the environment and its sustainability. Even without a background in the geospatial domain, Pushpak quickly grasped the GIS concepts and applications I taught during a course 'GIS for Social Sciences.' He performed excellently, achieving an A- grade. He also delivered quality seminars during student presentations about the course project and the internship project. His way of expression through a slow and steady pace with a calm personality is always well-suited to the listeners.

Pushpak's internship project was on mangrove forest mapping along an Indian coastal megacity. He applied a multidisciplinary approach combining GIS, coastal planning, and environmental policy to understand how mangrove forest cover has been exploited over a multidecadal timescale. During the internship, he was well-exposed to state-of-the-art tools and approaches such as AI/ML in satellite image processing and Google Earth Engine. Recently, Pushpak was also awarded the competitive student travel grant by the American Geophysical Union to present his internship work at the AGU Fall Meeting 2021 in New Orleans, USA.

In my view, Pushpak has developed a critical understanding of the potential of quantitative methods in environmental decision-making during his internship work. He has achieved expertise in remote sensing, GIS, QGIS, and the ESRI ArcGIS platform, with a proficiency in JavaScript and R. He has been an ambitious, enthusiastic, and motivated student, continually thinking and exploring the aligned research areas. Aside from being an independent researcher, he is also an excellent team member who can work with a team of researchers to produce high-quality work. His problem-solving mindset also motivated him into entrepreneurial ventures. I was impressed with his business model and prototype to solve the problem of the unavailability of healthy food in corporate spaces through automatic retailing distribution. He mentioned performing feasibility studies for the business model. Since the Ph.D. project involves the development of business models to optimize the usage of plastic waste in educational spaces, I believe Pushpak's unique entrepreneurial experience places him at a significant competitive advantage. I sincerely believe that he will develop a new set of knowledge and contribute exceptionally to the specific research group if any exposure may be provided to him. I strongly recommend his name for this joint Ph.D. program.

Sincerely

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