BRITISH COLUMBIA
Ministry of
Forests, Lands, Natural
Resource Operations
and Rural Development

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To whom it may concern;

I supervised Zimeng (Brandon) Ming when he was a co-op student for the B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development between January and November 2020. He was hired as a research technician for our research programme in the Ministry's Kootenay Boundary Region, and he was responsible for developing methods and scripts to quality control a long-term air temperature dataset. Brandon's efficiency and proficiency with the coding was outstanding, and we came to rely on his suggestions on data management.

Brandon demonstrated a strong commitment to deepening his understanding of data science and management, which is his field of study, but also in environmental monitoring and data presentation. He worked independently and efficiently to explore and implement tools for data analysis and presentation, customizing scripts that we are using to not only assess nearly 40 years of historical record but also building in flexibility so that we can assess new data as it is collected. He carefully documented his scripts so that they can be easily implemented by non-technical users, and created a user manual that we will be able to publish with the final, cleaned datasets. In addition to his proficiencies with data management, he took the time to understand some of the subtleties of environmental monitoring, specifically as they relate to air temperature measurements. He developed insight into the challenges of field data collection, sensor calibration issues and the effects of elevation on temperature. He also readily volunteered to help two of my colleagues organise and analyse some of their data in the fields of forest health and entomology.

Brandon demonstrated adeptness in R, Python, SQL and Microsoft Access in projects using meteorological and tree survival data, and to compile and summarise spatial data for assessing forest health. He carefully listened to us describing our research objectives and what types of analysis we needed, and successfully and creatively implemented tools to meet these needs. In the air temperature quality control project, he created a complex series of steps that applied different tests on daily and hourly values, and created customised graphs that we can use for research publications and public presentations.

Brandon's long-term goal is to work in the area of data and computer sciences. He shows a personal commitment to investing his time and energy into all tasks that he takes on. I believe that his strong work ethic and high level of interest in his chosen field of study make him an ideal candidate for the University of British Columbia graduate program.

Regards,

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