CITRINE INFORMATICS

21 October, 2019

On behalf of Citrine Informatics, I am pleased to state our intent to continue our collaboration with Zachary del Rosario on education and research efforts. This letter briefly describes the academic collaborations that Citrine maintains, and the nature of the work we plan to continue with Zach.

Citrine Informatics was founded in 2013 to enable a greener, more efficient world by accelerating the development and deployment of next generation materials and chemicals. We provide a scalable AI and data platform to help companies develop novel materials faster. Our company is also highly engaged with the academic community: We host an open data platform, sponsor a yearly undergraduate summer research internship, and solve fundamental materials informatics problems with academic collaborators.

Zach worked with us full-time during the summer of 2019 as an Instructional Designer and Data Scientist, working a dual role performing machine learning research while also developing and delivering materials informatics curricula. Zach had the rare ability to independently undertake complex technical work, communicate this work effectively to various stakeholders at Citrine, and to develop and teach lessons in data science, machine learning, and data management basics to students interested in – but unfamiliar with – these topics.

We are pleased that Zach has continued working with us as a statistical consultant, and we look forward to exploring collaborative opportunities with his students as he transitions to a faculty role. The following are methods of collaboration we undertake with academic groups, and we would like to collaborate on these initiatives with Zach as he transitions into a faculty role:

1. **Student research projects**: We have sponsored student research projects in the past, e.g. the MRS Open Data Challenge. Through these efforts, we aim to inspire engineering & materials science students to adopt new data science tools, and to encourage math & CS students to target this exciting application space. We are open to the opportunity to mentor Zach's students, helping them create new open datasets and build machine learning models for materials science applications, and to provide them context on how machine learning is used in industry. We are also happy to share internship and researcher-in-residence opportunities with Zach's students.
2. **Materials informatics curriculum development**: During his work with Citrine, Zach spearheaded the development and delivery of a Materials Informatics workshop held at

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Georgia Tech in mid-September of 2019. We will continue to scale this workshop to other universities through a "train the trainer" model that Zach developed, inspired by Software Carpentry, where we recruit and train teaching assistants from target universities. Zach's students could gain valuable teaching experience, greater skill in data science, and the opportunity to travel to other universities to help teach these workshops.

3. **Technology development**: Zach worked with our data science team to develop new decision logic for ranking materials candidates in the multi-objective context, rigorously accounting for the underlying uncertainties, a novel approach to material optimization on our platform. We are currently pursuing a peer-reviewed publication of Zach's work, and are excited to continue working with Zach on future technology development efforts.

In summary, we have a number of plans for continued collaboration with Zach and are excited by the possibility of future work with him and his students.

Sincerely,

Josh Tappan
Head of Community
Citrine Informatics