Michelin Project Discussion with Dr. Paige Rodeghero

By Troy Butler

Dr. Rodeghero is an Assistant Professor at Clemson University's School of Computing. She has industry experience as a software engineer, she is the founder and CEO of Software Developer Productivity Solutions, LLC, and she has collaborated with Microsoft as a visiting researcher. She has also co-authored a number of peer-reviewed articles. I met with Dr. Rodeghero during the morning of Tuesday 3 December 2024.

I began with a description of the project and then asked for her initial thoughts. She expressed uncertainty that a generative AI solution would be able to extrapolate reason if asked questions such as, "why does customer X receive discount Y?" The existing business rules only state the "what is" but not the "why." She then said that, otherwise, she thinks this project is a great idea.

When told about the progress we have made so far and Michelin's confirmation that we have moved in the same direction as Michelin and the consultant firms Michelin has hired, she expressed concern that we might be "reinventing the wheel." But she then added that, "with private companies wanting to protect their information, sometimes you do have to reinvent the wheel, but if you can avoid that and find other tools that can help, I think that's key. That's how (our team is) going to outpace others." Dr. Rodeghero then asked about access to open-source code, to which I described the AWS card-demo project. She said it was good that Michelin has directed us to a similar open-source codebase.

Dr. Rodeghero asked what the objective is for the end of this semester, to which I described the RAG pipeline we have implemented along with the documentation we are preparing to hand-off to the next team. She said that it sounds like we're on the right track so far.

When asked about her experience with AI and generative AI models, she stated that her experience is high-level only from using AI to write software. She uses it a lot to fix software, but also uses it a lot in her personal life. She emphatically recommended that we rely on AI to build software and encouraged us to build this AI system with the use of AI.

I then asked if she has experience with system migration. She explained that more than a decade ago, she was involved with a challenging migration to a new banking system. When asked about the challenges she faced, she said that the biggest challenge was not knowing how well the new code was performing as she only had access to an example dataset and not live information.

With respect to her experience co-authoring research papers, I asked for any advice she has to offer with regard to researching for the project. She replied that a lot of her research includes humans and developer productivity. She recommended that we try to get people at Michelin involved, employees who would likely be users of the finished product. We could then ask those employees to give us examples of questions they might ask the generative AI interface. She emphasized that the types of questions employees would ask may be very different from the questions our team is asking during experimentation. Dr. Rodeghero recommended that we create a brief (2-3 questions) open-ended online survey, so that Michelin employees can respond with example questions to ask the AI interface. As a side note, given the rapidly approaching end of this semester, this may be something the next team wishes to explore.

When asked how she would approach this project if she were assigned to it, Dr. Rodeghero explained that the most important thing is to have solid deadlines. “Requirements are the first step. In academia, we tend to spend too much time thinking and not enough time doing.” She also recommended that with regard to meetings, we keep a running list of meeting notes where the latest entries are added to the top. Each entry should contain very brief descriptions of attendance, tasks that must be completed before the next meeting, who said what, etc. These notes should be accessible by all parties involved. This way, it’s clear to everyone what needs to be done and also what can be done. She emphasized that this would benefit future teams as they can easily see what has been discussed and accomplished. With that, my meeting with Dr. Rodeghero came to an end.

Dr. Rodeghero was generally enthusiastic about our project and would be interested to see future progress.