Dr. Sc. Alessandro Landra
Technical Lead at IQM Quantum Computers
Keilaranta 19
Espoo, 02150, Finland
16/11/2022

Dear [redacted],

My name is Alessandro Landra, I am a young researcher in the quantum computing industry working as quantum chip designer at IQM Finland. I am writing in support of Daniele Cucurachi application to the [redacted]. I have been Daniele supervisor in early 2022 for more than six months. Daniele, a physics student from EPFL, contacted me and my team in late 2021 asking for an internship opportunity. From the first contact it was already clear that not only his physics background was already spot on, but his motivation and willingness to learn something new, while contributing substantially to the actual R&D work, was enlightening. I did not think twice and a couple of months later he was in my team. Since the beginning it was surprising how fast and efficiently Daniele was able in coding and solving any problem and challenge presented to him. He understood the physics of quantum hardware very well and he could implement his own designs, using his software engineering skills. He was able to bring an idea from the conceptual level to an actual measured hardware in a very short period, coordinating the whole process with other teams as well. I want to make clear that prior to the internship Daniele had very little experience in quantum processor design (probably a laboratory project at EPFL), six months later he was among the best in the team, to the same level, if not better, than current PhD level employees. He quickly became a reference for other teams as well, when they needed some chip design with a very quick turnaround, they all knew they just had to contact Daniele. He managed to implement others requests and make everyone life easier. Despite his internship (junior) title he was one of the most precious individuals, and I could only foresee that if he stayed longer, he could have developed his career very quickly due to his organizational skills, for himself and others, and his incredibly fast learning ability. He had the right skillset and mindset to guide a whole group of people to greater goals, with great discipline and a focus on beating the deadlines. One day his internship was over, and he sadly left us with a dream of pursuing [redacted]. I now believe a [redacted] would be the best way to further enhance his physics background and maybe explore other topics as well, I am quite sure he could succeed in other fields too due to his open mind and learning desire. If there is someone I would advocate for future employment, he would be certainly him.

Sincerely,

Dr. Sc. Alessandro Landra

Letter of recommendation for Daniele Cucurachi

To whom it may concern,

Daniele Cucurachi worked as Intern Quantum Engineer in the Design and Simulation team at IQM from Feb 1, 2022, to July 29, 2022. The team is responsible for designing quantum processing units (QPUs) based on superconducting qubits, and the related quantum physics and electromagnetics simulations.

During the 6-month internship, Daniele functioned as full member of the team, going far beyond what is typically expected during an internship. Daniele was an excellent intern overall, and I want to highlight the following in particular:

- Daniele quickly learned the tools and software development practices we use in the team, which allowed him to contribute to the teams' work immediately
- He has a very high motivation, especially to deliver excellent work and understand his work in detail. He was always happy to receive feedback and learn from it
- He demonstrated a high level of independence and teamwork: he started working together with the Fabrication team to figure out the requirements for the photomask drawings and invent solutions to implement these. There was no need to give Daniele specific "tasks", instead he took initiative to choose which specific issues he would work on to help the team in reaching the goals and deadlines.

Technically, the internship focused on creating photomask layouts for quantum processing units and fabrication test structures. These layouts were created by writing Python software, and as part of this work Daniele contributed to KQCircuits, and open-source project led by IQM for generating parametrized geometry and photomask layouts for superconducting quantum chips used in IQM. One significant contribution was to create a new way of editing the geometry in the graphical user interface.

Daniele showed good teamwork and communication skills, working closely with the Fabrication team, to discuss requirements for the photomasks and turn these into solutions. He showed initiative by starting a data analysis project, gathering existing measured data from various sources, comparing the measurements with design equations, and presenting statistics on the results. In the Design and Simulation team we enjoyed working with Daniele very much, both in the daily work and in social activities.

In conclusion, I warmly recommend Daniele for [redacted] With his strong motivation, independence, fast learning and great team attitude he has the potential to become an excellent scientist. Feel free to contact me for further discussions.

Sincerely,

Caspar Ockeloen-Korppi
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Dr. Sc. Alessandro Landra
Technical Lead at IQM Quantum Computers
Keilaranta 19
Espoo, 02150, Finland
16/11/2022

Dear Gates Cambridge scholarship selection committee,

My name is Alessandro Landra, I am a young researcher in the quantum computing industry working as quantum chip designer at IQM Finland. I am writing in support of Daniele Cucurachi application to the [redacted]. I have been Daniele supervisor in early 2022 for more than six months. Daniele, a physics student from EPFL, contacted me and my team in late 2021 asking for an internship opportunity. From the first contact it was already clear that not only his physics background was already spot on, but his motivation and willingness to learn something new, while contributing substantially to the actual R&D work, was enlightening. I did not think twice and a couple of months later he was in my team. Since the beginning it was surprising how fast and efficiently Daniele was able in coding and solving any problem and challenge presented to him. He understood the physics of quantum hardware very well and he could implement his own designs, using his software engineering skills. He was able to bring an idea from the conceptual level to an actual measured hardware in a very short period, coordinating the whole process with other teams as well. I want to make clear that prior to the internship Daniele had very little experience in quantum processor design (probably a laboratory project at EPFL), six months later he was among the best in the team, to the same level, if not better, than current PhD level employees. He quickly became a reference for other teams as well, when they needed some chip design with a very quick turnaround, they all knew they just had to contact Daniele. He managed to implement others requests and make everyone life easier. Despite his internship (junior) title he was one of the most precious individuals, and I could only foresee that if he stayed longer, he could have developed his career very quickly due to his organizational skills, for himself and others, and his incredibly fast learning ability. He had the right skillset and mindset to guide a whole group of people to greater goals, with great discipline and a focus on beating the deadlines. One day his internship was over, and he sadly left us with a dream of pursuing [redacted]. I now believe a [redacted] would be the best way to further enhance his physics background and maybe explore other topics as well, I am quite sure he could succeed in other fields too due to his open mind and learning desire. If there is someone I would advocate for future employment, he would be certainly him.

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