



QMIND

Queen's Machine Intelligence and Neuroevolution Design
Queen's AI Hub

AI

Project Manager Onboarding 2021-2022

May 31, 2021

Table of Contents

1	Introduction	1
2	Get to Know Us	1
	Sydney Corbett – Managing Director of Design	1
	Matt Wright – Director of Disruptive Technology	1
	Daniel Stewart – Director of Research	1
	Sean Sutherland – Director of Design	1
	Adam Farley – Director of Design	1
	Mimi Nguyen – Director of Design	1
	Ethan Callanan – Director of Design	2
	David Huang – Director of Design	2
3	Responsibilities of Project Managers	2
4	Timeline	2
	May 2021	3
	June 2021	3
	Start of client acquisition	3
	July 2021	3
	August 2021	3
	September 2021	4
	October 2021	4
	November 2021	4
	Early stage model development	4
	December 2021	4
	January 2022	4
	February 2022	5
	March 2022	5
5	What Makes a Project Successful?	5
	Duration	5
	Impact	5
	Engagement	5
	Learning experience	6
6	The Canadian Undergraduate Conference in AI (CUCAI)	6
	Project Manager Onboarding by QMIND	1

Conference Proceedings	7
7 Summer 2021 Strategy Guide	7
Consulting Projects	7
Research Projects	9
Passion Projects	9
Disruptive Technology Projects	9
8 Next Steps	10

1 Introduction

Welcome to the QMIND 2021-2022 Project Manager Handbook! Your Directors of Design (DoDs) are so excited to have you on the team and can't wait to get started! This guide is the first of three and has been put together to give you a better picture of what to expect as a Project Manager (PM) for this upcoming year and to get you started on setting up your projects. The other two documents will cover information and tips for contacting clients and the client acquisition, with the final document being delivered at the end of August providing tips and tricks for leading your team successfully. Please read this document in its entirety as it contains a wealth of knowledge that will be critical to your success as a Project Manager.

2 Get to Know Us

Sydney Corbett – Managing Director of Design

Sydney is our Managing Director of Operations. He oversees the entire design portfolio which consists of five Directors of Design, a Director of Research, the Project Managers, and the day-to-day operations of the design teams when the fall semester begins. He also will work with the DoDs to develop the design strategy for this upcoming year.

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Matt Wright – Director of Disruptive Technology

Matt oversees the new Division of Disruptive Technology at QMIND. He is responsible for 5-6 teams focussed on exploring and applying budding technologies into real-world design and research projects. The technologies of focus this year are Quantum Computing and Blockchain. He will also work with the Project Managers to build partners in industry and academia to source client and mentorship projects.

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Daniel Stewart – Director of Research

Daniel is our Director of Research. He oversees the DAIR (Division of Artificial Intelligence Research) at QMIND. He is responsible for 5-6 teams focused on applying AI techniques with industry level hardware to further explore the capabilities of AI. As well, He will lead the development of the CUCAI Conference Proceedings which will conglomerate the findings of all the amazing design teams on QMIND.

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The Directors of Design each manage a “node” within QMIND Design. Each node consists of 5 Project Managers and the teams they are leading. They will also work together with the Managing Director of Design, developing the design strategy and initiatives over the summer to ensure success for the coming year.

3 Responsibilities of Project Managers

As you all saw during the general onboarding presentation, QMIND has a clear vision for the culture as well as the values that are expected to be upheld by all members of the team [for reference, the slides to the general onboarding can be found here: <https://drive.google.com/open?id=1tCXEf7MVk-XqYmPgg6tE907jO7K6-mwY>]. In addition to this, there are specific responsibilities that must be met by all Project Managers. Project management is much more than simply booking meetings and reminding people to work on the project. A Project Manager must:

- Plan interesting, well-organized projects
- Organize and lead effective and efficient meetings
- Create a memorable experience for your team
- Motivate the team
- Use an empathetic approach to conflict resolution
- Contribute directly to the development of the project
- Communicate important announcements to team members and ensure they are aware of what is currently taking place within QMIND
- Attend all events with enthusiasm and motivate team members to attend
- Use personal connections to acquire clients for projects and sponsors for the conference
- Manage client relations

Project Managers are expected to spend 5-10 hours per week executing the above responsibilities. Although this is a demanding role, please do remember that you Directors of Design are always willing to assist you and help you succeed in your role. Later, the DoDs will provide tips that will help you excel as a project manager and meet your goals.

4 Timeline

In this section you will find a timeline that is specific to Project Managers. Important events and deadlines will be outlined so you will have a better idea of what your tasks and operations as a Project Manager are going to look like. Also provided is a general timeline for your project. Even though there is a timeline for your project provided, please note that the timeline from October to February is highly dependent on what your project is. You should not blindly follow the timeline as many of the projects are unique and might not follow a similar timeline at all. At the end of the day, it is up to your executive (and smart) decision as to what the next steps are for your project.

May 2021

- Beginning of the project ideation stage
 - Think of **two** passion project ideas and A brief write up should be completed by the **first week of June**.
 - The ideas should be well thought out and must be approved by the DoDs
 - These projects will help us gauge the interests of our team and provide us with material when discussing potential partnerships

June 2021

Start of client acquisition

- Identify potential clients to contact and form a strategy for acquiring them
 - Think of all your connections (family, friends, former employers, etc.)
 - Refer to past clients that may be interested in another partnership(feedback survey)
- Think of potential projects that you could do with these clients
- DoDs will help you with this strategy and planning and further developing your ideas
- Upon completion of reachout strategies and project ideation, coordinate with partnerships to contact clients (a more in-depth discuss of this strategy can be found in the Summer 2021 Strategy Guide section)
- “Pitching” the projects that QMIND could do for them and what value they would get out of it
- Beginning of technical training
 - Technical onboarding document includes high-level overview on a range of topics including data science, project management, cloud services, and client acquisition.
 - More in-depth training on topics such as GIT, Pylint, and unit testing will be run based on PM interest.
 - PMs may also request technical training on project specific elements.

July 2021

- Finishing client acquisition
 - Finalizing details with clients that were interested in working with QMIND and getting them to sign agreements. Again, this will be in conjunction with the partnerships team (Don't worry, there will be lots of help during this stage).
- Client-facing project planning
 - Begin a detailed write-up on the project that will be done with the client

August 2021

- Finalizing project write-ups
 - You must have projects finalized with two-page descriptions of them
 - Sections to include:
 - Problem definition
 - A clearly defined scope (is the project reasonable)
 - How are you obtaining data (online, client, etc.)?
 - A specific timeline (What general steps are you going to be taking at each stage to ensure that your team can deliver the project on time)

- Onboarding/Hiring preparation
 - The directors may require your help for creating and/or testing content that will be used for onboarding and member hiring

September 2021

- Open house and QMIND Launch
 - Help advertise the positions that we are hiring for (sharing social media posts, telling your friends about the opportunities)
- Fall hiring
 - You will assist in interviewing members and may attend up to 40 interviews in a week
 - You will be trained on proper interviewing
- Team formation
 - Assisting in hiring deliberations
 - Creating teams for each project
- Camp QMIND
 - Camp QMIND is an initiative run by Design which is used to train and onboard the newly hired members
 - You will participate in and help execute the onboarding weekend

October 2021

- Start your project
 - Describe the project to your team (if only you made a two-page document outlining your entire project... oh wait)
 - Discuss the client you are working with and introduce your new team members to the client
 - Get team started with learning all the technologies that will be needed for the project
 - Research
 - Data collection and cleaning (web-scraping, cleaning client data, etc.)

November 2021

Early stage model development

- Create a basic model
- Additional research and learning
 - Emphasize the importance of learning difference models and machine learning techniques and how they can be applied to your problem.

December 2021

- Exams
- Winter break (encourage that your team continues their research of potential solutions to the problem, so they are prepared when returning from the break)

January 2022

- Model development
 - Refining model
 - Adding more advanced machine learning techniques
 - Try out more complicated models
- User interface development
 - How will you showcase the capabilities of your model?

- GUI
 - Web app
- Winter Kick-off
 - Start the semester off with a bang and showcase the work you and your team have put in so far.
 - Reflect on the progress you have made, and what is left to be done. Layout your plan for the rest of the semester.

February 2022

- Put the finishing touches on your model and interface
- Prepare and demos for the conference
- Evaluation and analysis
 - Create visuals and a presentation for the conference
- Reading week
- CUCAI taster event
- Managing Director hiring

March 2022

- CUCAI (woot)
- Conference Proceedings
- Director and Project Manager hiring

5 What Makes a Project Successful?

Having a classification model with 97% accuracy does not make the project successful alone. These are some best practices to keep in mind during ideation and execution of your project!

Duration

Make sure your team can finish the project for CUCAI conference next March, else our client may be unimpressed by your team not meeting the deliverables. If the project is finished too early, it may not look as impressive as the other projects at CUCAI. Having a project that is too long or too short will affect you, your teammates, and the rest of QMIND. It is a good idea to think of projects that can be done in time for the conference while also thinking of potential stretch goals. This way, if you finish early, your team can continue developing something up until the conference.

Impact

Whether you are working on a consulting project or an internal project, we want your effort to offer real world values. The project should provide our clients a satisfactory result or inspire future development upon your progress. For internal consulting, having a valuable project will attract industry interest and solidify your learning at QMIND. Having an impactful project will attract enthusiasm and interest beyond your intended audience. Choose a project that can change the landscape of AI, or simply one that inspires you by a value you stand for.

Engagement

There is no boring project, the goal here is to make the progress engaging to you and your team. Whenever there is a chance for growth and learning, use it to gain traction and interest from your team. Know when to speed up and slow down the development process depending on stage, difficulty, or time. Understand your

team's learning style and assign tasks to your members' strengths. You are the leader and you will understand your team the best out of anyone in QMIND.. You are always welcomed to challenge yourself, but make sure to know what is reasonable to accomplish. Not to rub it in but you guys will still have school work go on for you as well!

Learning experience

Another important thing to consider is how your project will bring value to your team members. The reason QMIND is special is because over the past years we have been able to get hundreds of people to contribute many hours to developing projects. The developers are the core of QMIND, and it is important to give them value for their hard work on the projects. Many members join QMIND looking to learn new technical skills, learn more about AI, and how it's applied to solve problems.

While you are thinking of your project, you should think about what value your team members will get out of the project. What technical skills will they learn? What machine learning algorithms are involved that they will learn about? Will the project give them an opportunity to learn how to web scrape or how to build a GUI? Think of stretch goals that maybe aren't essential to your project but perhaps require a skill that someone on your team really wants to learn.

6 The Canadian Undergraduate Conference in AI (CUCAI)

CUCAI is an annual conference that brings undergraduate students who are passionate about AI together with professionals that use AI in industry. The goal of the conference is to introduce students to industry professionals and allow them to discuss the future of AI. The conference is organized and run by a team of students within QMIND.

The conference's inaugural year was in March 2019 where it was a one-day conference held in Kingston. In March 2020, the conference was moved to Toronto improving the ability for industry and other schools to make it to the conference. It was an entire weekend long event and had almost 300 attendees. Sponsors that attended can be seen in the figure below.



CUCAI is an opportunity for QMIND members to network with industry representatives and make connections that could potentially help them secure summer or full-time positions. It also allows students to ask questions to professionals about their projects and receive feedback. Additionally, companies are able to talk about the use cases of AI so students can see how it is applied in the real world.

CUCAI acts as the ultimate deadline for QMIND members. Since teams are showcasing their projects to industry professionals, they become motivated to finish the project. Without CUCAI, it would be harder to enforce a deadline for the project and ensure that the projects are all completed.

Visit <http://cucai.ca> for more information

Conference Proceedings

A conference proceedings is a published record of the conference that includes the reports of papers presented by participants of the conference. After CUCAI 2020, each team wrote a 3-page report on their project that covered the process of the project and the technical details. The goal of these reports was to have documentation describing the project, try to publish the reports in an academic journal, and to give members experience writing an academic paper.

Documentation for projects is a great way to help QMIND members for future years. The conference proceedings can be shown to PMs of the next year so that they have a better idea of the projects they will be creating. It can also be shown to potential conference sponsors for the next year and give detailed descriptions of the projects QMIND has worked on in the past.

The best reports submitted are ranked by professors and sponsors that attended CUCAI. The Director of Research will work with the team that wrote the highest ranked reports to help get them published in an academic journal. Getting our members published in an academic journal would be an amazing experience for them and set their resume apart from other undergraduate students. It would also solidify QMIND's spots as being a club that is advancing research in the field of AI.

One main initiative of ours this year is to have teams write their report throughout the year. By doing so it can be completed before the conference and the papers can be sent out shortly after CUCAI. The previous year, teams only started writing their report after the conference and there was a delay between the conference and when the papers were published.

Please contact Daniel for the CUCAI proceedings from last year if you're interested!

7 Summer 2021 Strategy Guide

For this coming year of QMIND 2021-2022, we plan on having 25-30 design teams, 5 DAIR projects and 5 Disruptive Tech projects. Of the 30 design projects, we are introducing a new initiative where 2-4 of those projects will work with our product team to create a mobile or web application. We are also making a big push this year to get as many client-facing projects as possible. This will legitimize QMIND Design and blur the line between QMIND being another club on campus, and QMIND being a consulting company.

Consulting Projects

QMIND is continuing the push to legitimize ourselves as more than just a student club. One of the biggest ways we're doing this is by differentiating between QMIND Internal Design and QMIND Consulting. QMIND Consulting will comprise of all of this year's client facing teams. With this new Consulting title comes more expectations for the project.

Summer Timeline

The main goal of the summer is obviously to get a client, and to define a project for the team to work on. Much like last year, teams will either contact companies directly, or be put into contact via the Partnerships team. Specific client outreach techniques are covered below. Once contact with a potential client has been made, the discovery and problem definition stages begin. Some companies may have some potential use cases defined about where AI/ML can be used in their business, but many don't. This means PMs and their DoDs must work with the client to "discover" some potential use cases of AI/ML in their business. This will generally involve more than a couple meetings learning about a company, its current state, and how it operates. This process is GREATLY simplified if the PM has a solid understanding of the client's business before engaging with them, so PMs should make sure they've done their research. Once a project is defined, the Operations team will come in and help define the exact scope of the project, and in turn calculate the project's cost. Operations is working on a more structured cost breakdown for projects that will hopefully

make deliverables more clear for both parties involved. Just like any other QMIND project, PMs need to make sure they fully understand the project they're working on, and the stage it's currently at. There should be some sort of onboarding material prepared for the General Members (GMs) by October so they can start contributing to the project right away.

Value and Expectations of QMIND Consulting

Working on a Consulting project gives members the chance to develop strong industry connections, and allows for all team members to work on the soft skills required to work in AI as a seasoned professional. If a project goes well, it is not uncommon for clients to offer team members internship, or even full time opportunities after a project. That being said, QMIND Consulting is QMIND's largest connection to industry and will be the driver of QMIND's long term reputation in the Canadian AI/ML sector. PMs and GMs working on Consulting projects must express heightened levels of professionalism when engaging with clients, and need to be dedicated to the project's success if all deliverables are to be met within the school year.

Contacting a Client

Over the summer, the partnerships team, DoDs, and PMs will be reaching out to potential clients to set up projects. Client acquisition efforts will be centralized through the partnerships teams to manage client outreach and ensure only one person from QMIND is connecting with a company. In most cases, QMIND Partnerships will reach out to potential client initially to pitch QMIND in general and establish interest. In the second call, they will bring in a PM to go over possible project ideas and build up the technical side of the project. However, if the PM has a personal connection, they can reach out first and bring in the Partnership Coordinator in the second call to establish contact details. Even though it is a personal lead, the outreach information will still need to be input into the central database and be organized by Partnerships.

PMs should consider reaching out to:

- Companies their parents work at
- Current and past employers
- Companies they have interviewed at (whether or not the interview was successful)
- Companies their friends or neighbours work at
- Local companies
- Any company they feel would benefit from an AI-driven solution

Remember **not to reach out** to these companies **until they are approved** by the DoDs and Partnerships. Soon we will go over tips on how to take advantage of a personal connection to establish a partnership and tips on thinking of project ideas for a client once they show interest.

You will hear more information regarding our partnerships plan for the summer soon. A call will be set up with all of Design and all of Partnerships to get everyone on the same page.

What if you don't get a Client?

In the event that a PM does not secure a client over the summer, they will instead work on one of the Internal Projects they've concurrently been designing over the summer. Some PMs may have a potential client, but would rather work on an Internal Design team. If this is the case, a DoD should be contacted to find an interested PM.

Extra Documentation for Consulting PMs

There will be documents expected from a Consulting PM that will not be expected from Internal, DAIR, or DT PMs. These documents are things you would find in any typical consulting engagement, and will help develop the professional reputation of the club. More information on the structure and expected deadlines for these documents will be provided later in the summer, these documents include:

1. **Early Engagement Report:** Includes Problem Def, Stakeholder Analysis, Solution Approach, Potential risks to project completion (kind of like an RFP)

2. **Project Org Structure:** Clearly defined members of the engagement, and their roles
3. **Onboarding and Kickoff deck:** Meant for the GMs, and will be presented to the client when transitioning from Discovery to Implementation
4. **Learning resource list:** Curated list of technical resources for the GMs
5. **Functional Design:** User Stories and Business Requirements (may receive third party assistance for this)
6. **Technical Design:** Solution Architecture, technical specifications, data flow diagrams (may receive third party assistance for this)
7. **Project Retrospective:** Only if the project will not be in CUCAI

Research Projects

Two years ago, QMIND announced a brand-new initiative with the goal of introducing undergraduate students to the world of professional research. QMIND DAIR or Division of AI and Research provided students with hardware to explore the interconnection between AI and physical hardware. To do so, QMIND invested in three TurtleBot 3s and some Intel RealSense cameras for the DAIR projects. To expand the research opportunities to all the QMIND community, the CUCAI Conference Proceedings was introduced.

This year, QMIND plans to have DAIR feature 5-6 teams. Similar to previous years, DAIR research teams will have exclusive access to the DAIR hardware library. However, DAIR teams this year will not be required to utilize hardware at all, instead pushing creativity in project development and freedom for teams to pursue projects that interest them. While recognizing the great asset the hardware library has proven to be in years past, DAIR teams in 2021 will be encouraged to utilize the available hardware as a potential enhancement to their projects, rather than a constraint.

During the summer, each DAIR Project Manager will be required to create two project ideas. These projects will serve as a way for us to ensure that each project manager will have a wide range of projects to pursue. Even though these will mostly be backup ideas, it is important that they are well thought out and documented in case another project manager decides to pursue your backup project. Furthermore, in September QMIND will be looking to hire around 1-2 more DAIR Team Leads that will take on a project created by PMs. It is important to have your project ideas properly documented to ensure the Team Leads completely understand the project and can succeed. When design team formation starts, we will decide, alongside the Team Leads, which research projects to use and the ones that aren't used will be saved for future years.

Passion Projects

Passion projects encompass all the projects that are internal to QMIND. Without a client attached, you as the Project Manager get full autonomy from ideation to implementation. These projects are an excellent opportunity to come up with a unique application of AI, try out new areas in the field, and explore topics that *you* are passionate about. Then, at the end of the year, you will have the opportunity to showcase your work to industry professionals and publish a paper at CUCAI!

Every Project Manager will be required to come up with two passion project ideas. Even if you end up as a consulting PM, these projects will be given to the fall hired Team Leads as their projects for the year. As mentioned in the timeline, each project will have a write-up to go along with it due in August. These write-ups will be your formal plan to help you get the most out of your project, or if it is given to a Team Lead, it will be their guide to successfully completing the project. With this in mind, make sure your plan is sufficiently detailed. Also consider the data that will be needed for your project: are there relevant public datasets available? Would it be feasible to create your own? Finding good data can often be a bigger challenge than it seems, so give it some thought early on.

But most of all, have fun with it!

Disruptive Technology Projects

Project Managers in this division will have full freedom in planning their projects. You will work closely with the DoDT and mentors to source partnerships, explore different technologies used in the field, ideate, and scope your project. The fields of quantum computing and blockchain may be nascent but they are very broad and you are encouraged to immerse yourself in the field to find your passion.

The first half of the summer will be spent learning about your given field, familiarizing yourself with the technologies and applications out there, and building your technical skills. Then we focus on project ideation and scoping of the main design project your team will work on. This will require a detailed plan defining the problem, scope, success metrics, milestones, possible extensions, and the kind of technologies you will use (e.g. libraries, frameworks, algorithms, etc). We then focus on planning the General Member onboarding. This involves determining how to teach GMs the foundations, exposing them to technologies, and building their technical skills so they can take on the project you defined.

8 Next Steps

Hopefully this document has given you a better idea of what to expect from being a Project Manager and what your role will be this summer. In terms of next steps, do not start reaching out to companies yet, but feel free to start thinking of what companies you may want to contact or ideas for projects you want to do. Within the next couple of weeks we are planning on sending out some tips and guidance for completing these things. If you have any questions before then, please do not hesitate to reach out to any of the design executives as we are always happy to assist you.

Thank you very much for reading all of this! We are excited to get started with you this year!