814601S Work Experience in ICT responsibilities

Internship information	
Name	E.W. Prabhash Kumara Rathnayake
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Study program and starting year	Business Analysis-Information Processing Science 2023
Employer	University of Oulu
Place of work	At the Autonomous Driving Project
Employers address and phone number	University of Oulu, North Ostrobothnia, Finland
Internship time period (start-end)	2024-05-27 to 2024-07-31
Internship report revision by employer	
Date	Employers signature
Clarification of signature and position	
Acceptance of internship by study program	
Date	Signature
Clarification of signature and position	

2. Preparation

My journey to secure this internship opportunity began with a proactive approach to seeking out research positions within the University of Oulu. I utilized various resources available to students, networking and by attending information lectures on internship opportunities and participating in workshops focused on career development. These sessions provided valuable insights into the application process and helped me refine my approach to seeking internships.

The call for applications were sent over email, by one of our lecturers and it was through email communication that I discovered the opening for a research assistant position in the Autonomous Driving Project under the 6GVisible initiative. The detailed job description of the RA position was perfectly aligned with my academic background and career aspirations, prompting me to apply immediately.

In preparing my application, I drew heavily on the guidance provided in the university's career workshops. These sessions had equipped me with skills to tailor my CV and cover letter to highlight relevant coursework and projects that demonstrated my capabilities in data analysis, machine learning, and programming - all crucial skills for the position.

While the resources provided by the university were undoubtedly helpful, I found myself wishing for more specific guidance on applying for research positions within academic institutions. A workshop or guide focused on the nuances of academic research applications, including how to effectively communicate one's research interests and potential contributions to ongoing projects, would have been extremely beneficial.

Additionally, I believe that more opportunities for networking with faculty members and current research assistants could have provided valuable insights into the day-to-day realities of working on university research projects. Such interactions could have helped me better prepare for the application process and understand the expectations of the role more clearly.

3. Employer and Internship Organization

My internship with the University of Oulu's Autonomous Driving Project, part of the broader 6GVisible initiative, offered a unique opportunity to contribute to cutting-edge research in the field of autonomous vehicles and next-generation communication networks. The project's one of the primary focuses was on developing and optimizing 5G and 6G technologies and the core network architecture for autonomous driving applications, a crucial area of research with far-reaching implications for the future of transportation and urban planning.

My role as a research assistant was integral to the project's objectives of analyzing the Radio Access Network (RAN) requirements and identifying the challenges for autonomous driving scenarios. This work directly supported the project's overall strategy of enhancing the capabilities of cellular networks to meet the stringent requirements of autonomous vehicles.

The primary stakeholders in this research included the other researchers involved in this project in various aspects such as in automotive designing, Access Network development, and regulatory bodies responsible for setting standards for the project operations. While I didn't interact directly with these external stakeholders, my work in the contribution to the scientific will provide valuable insights to these groups.

The impact of my work was most evident in the development of RAN network and identifying the existing 5G Networks capabilities on the Autonomous Driving scenarios. These contributions helped the project team better understand the potential limitations of current 5G networks and identify areas where 6G technologies could provide significant improvements for autonomous driving applications.

During my time with the project, I identified several areas for potential improvement in the research process. One key observation was the need for more comprehensive and standardized datasets specific to autonomous vehicle network traffic. To address this, I would suggest establishing partnerships with other research units and telecom operators to collect more diverse and representative data. Additionally, implementing a more structured approach to data management and version control could enhance collaboration and reproducibility of results within the research team.

The internship provided numerous opportunities to expand my professional network. The project meetings allowed me to interact with researchers from various disciplines who were working on the project, including wireless communications, machine learning, and automotive engineering. These interactions not only broadened my understanding of the field but also opened up potential avenues for future collaboration.

Adapting to the academic research environment was a smooth process, largely due to the welcoming nature of the team and the clear structure of the project and my supervisor. The collaborative atmosphere was evident in daily activities, from informal discussions during coffee breaks to more structured brainstorming sessions. Outside of work hours, I participated in several social events organized by the university, which helped foster a sense of community among researchers and students.

4. Duties and Assignments

My primary responsibilities during the internship centered around data analysis, machine learning model development, and literature review in the context of 5G/6G networks for autonomous driving. Specific tasks included:

- Reviewing and analyzing existing datasets on network traffic from various levels of autonomous vehicles.
- Developing a network demand prediction model.
- Conducting a comprehensive review of standards and parameters for Cellular V2X communications.
- Investigating network simulations and software available for autonomous driving use cases.
- Documenting findings and contributing to the drafting of a research paper.
- Annalyse and replicate the test cases on RAN network in Autonomous Driving scenarios

The work I produced provided several benefits to the project:

- The network demand prediction model offered some insights into potential bottlenecks in current 5G networks for autonomous driving applications. (Additional tests will be conducted in this test case)
- The literature review helped identify gaps in current research and informed the direction of future investigations.
- We have identified some important thresholds in the Vehicle to Everything (V2X) side links and on the challenges that are affecting the dynamic users of the current infrastructure design.
- Analysis of existing datasets. and maybe a test bed to highlight the need for more comprehensive data collection specifically tailored to autonomous driving scenarios.

Throughout the internship, I identified several areas for potential improvement in the research process:

- Data Acquisition: Establishing more robust partnerships with industry players could provide access to more representative datasets.
- Interdisciplinary Collaboration: Enhancing communication between different research groups within the university could lead to more innovative solutions.
- Simulation Tools and test beds: Investing in more advanced network simulation software could improve the accuracy of predictions and allow for more complex scenarios to be modeled and using test beds specifically designed for these use cases would have make a huge difference in the current research phase.

The leadership style I encountered was primarily collaborative and supportive. My supervisor, Vishaka Basnayake, encouraged independent thinking while providing guidance when needed. I was given considerable autonomy in approaching tasks, particularly in the development of the machine learning model and the literature review process. This level of trust allowed me to develop my problem-solving skills and take ownership of my work.

5. Fulfillment of Plans and Personal Development

Reflecting on my initial internship plan and learning goals, I'm pleased to say that most of my objectives were met, and in some cases, exceeded. The experience provided a deep dive into the world of 5G/6G-enabled autonomous driving systems, significantly enhancing my understanding of this cutting-edge field.

My goal of improving machine learning and data analysis skills was fully realized through the development of the network demand prediction models. This task pushed me to apply theoretical knowledge to real-world data, enhancing my practical skills in data preprocessing, model selection, and performance evaluation.

The extensive literature review I conducted not only informed our project but also honed my ability to critically analyze research papers and identify key trends and gaps in the field. This skill will be invaluable in my future academic and professional endeavors.

One area where I faced challenges was in accessing specific datasets and resources necessary for comprehensive model validation. This situation required me to think creatively and adapt my approach, ultimately leading to the use of alternative data sources and methodologies. While initially frustrating, this experience taught me the importance of flexibility and resourcefulness in research.

I believe my strengths as an employee were most evident in my ability to work independently, meet deadlines, and communicate complex ideas clearly. The positive feedback I received on my contributions to the work that I have carried out was particularly encouraging.

6. The Application of Skills in Future

Based on this internship experience, I've identified several areas for personal development:

- Advanced Machine Learning Techniques: While I successfully applied basic ML algorithms, I aim to deepen my knowledge of more advanced techniques, particularly those applicable to time-series data and network optimization.
- Technical Writing: Although I contributed little to the research paper, I recognize the need to further refine my academic writing skills to more effectively communicate research findings.
- Project Management: As I aspire to lead projects in the future, developing stronger project management skills will be crucial.
- Networking Skills: While I made good connections during the internship, I aim to become more proactive in building and maintaining professional relationships in the field.

The internship has opened my eyes to several potential career paths I hadn't previously considered. Roles in the research and development department in the industry, and further in academic research field now appear as attractive options post-graduation.

Based on this experience, I've updated my personal study plan to include more in the research methodology and seminars. I've also decided to get my hands on some software's to complement my technical skills.

Following the internship, I've updated my CV to highlight the specific projects and skills developed during this period. I've also revamped my LinkedIn profile, adding details about the research project and connecting with professionals I met during the internship.

I would wholeheartedly recommend this employer to other students. The University of Oulu's research environment provides an excellent balance of academic rigor and practical application, offering valuable experience for students interested in cutting-edge technology research.

7. Suggestions for Improving the Degree Program

Having completed this internship, I have several suggestions for improving the degree program:

- Increased Focus on Practical Applications: While the theoretical foundation provided by the program is strong, incorporating more hands-on projects that simulate real-world scenarios would better prepare students for industry challenges.
- Enhanced Industry Collaboration: Establishing more partnerships with technology companies for guest lectures, site visits, and collaborative projects would provide students with valuable industry insights and networking opportunities.

- Expanded Course Offerings in Emerging Technologies: Given the rapid pace of technological advancement, regularly updating the curriculum to include courses on emerging technologies like 6G, advanced AI applications, and quantum computing would keep students at the forefront of the field.
- Improved Research Methodology Training: Introducing a compulsory course on research methodologies, including literature review techniques, academic writing, and data analysis tools, would better prepare students for research-oriented roles.
- Interdisciplinary Projects: Encouraging collaboration with students from other departments (e.g., computer science, electrical engineering) on joint projects would foster a more holistic understanding of complex technological systems.

Conclusion

My internship with the University of Oulu's Autonomous Driving Project has been an invaluable experience, providing me with practical insights into research and development in the field of 5G/6G technologies and autonomous vehicles. This experience has enhanced my technical skills and provided a clearer vision of my career aspirations and the areas I need to focus on for future growth.

The challenges I faced, particularly in data acquisition and model development, have strengthened my problem-solving abilities and adaptability. The collaborative nature of the research environment has improved my teamwork and communication skills, while the autonomy I was given has boosted my confidence in tackling complex problems independently.

Perhaps most importantly, this internship has reinforced my passion for research in the academic domain. It has opened my eyes to the vast potential of this field and the critical role it will play in shaping our future lives.

As I move forward in my academic and professional journey, I am confident that the knowledge, skills, and connections I've gained during this internship will serve as a strong foundation. I am grateful for this opportunity and excited about the possibilities that lie ahead in this rapidly evolving field.

Weekly Reports

Prabhash Rathnayake: 2305010
University of Oulu: Autonomous Driving Project
Summer Internship 2024

Attachment 1.

Personal internship plan

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Employer's contact person: Vishaka Basnayake Mudiyanselage

Contact information: vishaka.basnayake@oulu.fi

Estimated time/times for internship: 2 months (till July 21st)

Planned duties and assignments for the internship period:

During the internship period, my primary duties and assignments will include a thorough orientation to the University of Oulu's 6GVisible project, focusing on 5G/6G-enabled autonomous driving. I will review and analyze datasets on network traffic from various levels of autonomous vehicles, followed by developing a network demand prediction model using machine learning algorithms. This model will be validated and refined using the collected data. Additionally, I will conduct a comprehensive review of standards and parameters for Cellular V2X communications. My tasks will also entail investigating network simulations and software available for such use cases, analyzing any discrepancies, and refining the model accordingly. The findings from these activities will be documented and summarized in a detailed paper, covering methods, results, and implications for future research in autonomous driving technology.

Knowledge and skills acquired during studies that can help in the duties:

During my studies, I have acquired advanced skills in machine learning and data analysis, essential for developing and refining the network demand prediction model. I also have the programming experience needed for model development and network simulations. My expertise in statistical analysis will be useful for validating the model, and my ability to conduct literature reviews and document research results is crucial for producing a comprehensive research paper.

Personal learning goals:

I aim to deepen my understanding of 5G/6G-enabled autonomous driving systems and enhance my machine learning and data analysis skills. I will conduct literature reviews to inform model development, improve my technical writing by documenting research processes, and enhance my collaboration and communication skills. By the end, I aim to advance my expertise in autonomous driving and machine learning, contributing effectively to the project.

Student's signature: 

Employer's signature: _____

Study program signature: _____

Attachment 2.

Weekly report: Week 1 (2024-05-27 to 2024-05-31)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

Orientation and familiarization with the University of Oulu's 6GVisible project, including defining specific aims, objectives, and deliverables for the training as part of 6GVisible. Understanding the project aspects, and technical aspects, and meeting various researchers involved in different areas of the project. Also, understanding the Autonomous Driving architecture and standards to begin work on the final deliverables.

Challenges faced during the period:

The main challenge was to get to know the 5G and 6G standards, as they are somewhat different from my expertise areas. However, I was able to manage it with my RAN experience. The actual challenge was building a more holistic version of the project.

Solutions and successes:

As I participated in project meetings and engaged in conversations and discussions, I was able to gather more details, clear my doubts, and get a better understanding of the project and its progress.

I had expertise in 2G, 3G, and 4G technologies, so transitioning to 5G and 6G was a matter of refreshing my memory and putting in some effort to learn. Research papers and study materials helped me, and within the first week, I gained enough knowledge to effectively carry out my tasks.

Personal development:

The key point is that I successfully adapted to a different domain by creatively applying my existing knowledge and skills to suit the job requirements. I firmly believe that this experience has been essential for my personal development. Furthermore, working on this project has exposed me to a valuable network of talented professionals, enhancing my confidence and skills.

Knowledge and skills from university studies that I was able to utilize in my work:

The researching methodologies enabled me to kickstart the assigned tasks, and my expertise in data engineering, especially project management and group work instilled in me the confidence to autonomously and effectively tackle the task assigned to me.

Weekly report: Week 2 (2024-06-03 to 2024-06-07)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

I was primarily tasked with reviewing existing datasets on network traffic from non, semi, and fully autonomous vehicles. Additionally, I delved into the European standards and 3GPP standards to understand the accepted network parameters and available protocols. This review was mainly technical and also aimed at finding similar research and datasets for making predictions.

Challenges faced during the period:

The topic is relatively new, and the available datasets have been used in a case-focused manner rather than meeting our expectations and requirements. The knowledge database on this RAN application is scattered across several areas. Most of the RAN KPI data I was looking for was not available within the project yet. It was not possible to gain a correct understanding without delving deeply into other related concepts and requirements for autonomous driving.

Solutions and successes:

Despite not having access to exact data sets, I managed to retrieve some raw data based on existing car sensor data. I used this information to adapt to other requirements and predict traffic patterns, while also furthering my understanding of autonomous driving.

Since I couldn't access the Oulu-specific Radio Network KPI, I proactively sought out additional information from other sources. I plan to integrate available data sets from 5G and 6G testing into autonomous driving traffic systems, aligning with industry standards and meeting specific requirements backed by various research efforts.

Personal development:

I successfully overcame the limitations and efficiently managed the tasks within the given time frame. In a research project, I expect uncertainties and surprises, but I am confident in my ability to be resourceful and goal-oriented, working with what we have and seeking alternative approaches to achieve our objectives.

Knowledge and skills from university studies that I was able to utilize in my work:

I want to emphasize the importance of being adaptable and using different strategies which I learned while working on the Capstone project and other tasks. The programming and AI concepts I've learned have been very useful for this week's work, as well as the BI skills I've acquired. The confidence I've gained during my studies has helped me stay positive and be more creative and resourceful when facing challenges.

Weekly report: Week 3 (2024-06-10 to 2024-06-14)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

I aimed to forecast the data volumes for autonomous driving and assess factors like Radio Access Network demands and thresholds.

Challenges faced during the period:

The primary challenge was to receive help and support from others who were participating in the project. In some cases, I didn't have any other options when my initial approach was not feasible. Therefore, I had to take the initiative to find a solution on my own if there was no other help available.

Solutions and successes:

I was able to determine the needed information from the available data sources. Even though it was not the primary ideal data set for this application, it was good enough to derive some valuable data and predictions.

The next step was to reach out for help and I scheduled daily meetings with my supervisor so that we will be on the same page with our conclusions and also we will synchronize in a way that the research is streamlined and runs smoothly with the related and desirable outcomes.

Personal development:

Despite working in a technical field or any other area, collaboration and teamwork play a crucial role. I've learned that it's always better to ask for help instead of getting stuck in the same loop. In research, it's about continuous learning, sharing, discussions, readjusting, and making continuous improvements, which is very useful for both my personal and professional life.

Knowledge and skills from university studies that I was able to utilize in my work:

The crucial aspect is the capacity to collaborate as a team. It's not just about being intelligent or hardworking as an individual, but rather about being able to meet the team's requirements and fulfil its demands. This week, I devoted most of my time to working on programming and machine learning applications. It was fascinating to see how academic skills and knowledge can be applied to real-world scenarios and to identify their limitations.

Weekly report: Week 4 (2024-06-17 to 2024-06-21)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Thu from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

I need to finalize the network demand for autonomous driving and then compare and summarize if 5G can accommodate that network demand with the current infrastructure. I have completed most of the required deliverables for my entire RA job, and now I am shifting my focus to assist my supervisor in publishing a paper on the findings I have made so far.

Challenges faced during the period:

I encountered the main challenge with the machine learning part of the project. I had to improvise and was stuck for a long time because the model did not perform as expected due to limited access to data. Consequently, I couldn't achieve the best results. Additionally, I discovered that I won't have access to the required Oulu-specific 5G data, which means I may need to find another way to provide the final output. To ensure my models' accuracy, I'll need to find alternatives.

Solutions and successes:

I faced challenges in developing an accurate model for some machine-learning applications due to the nature of the data. However, I managed to identify relevant threshold points using other data analysis methods and logic. I've also requested assistance from my supervisor to arrange a Drive test for 5G as the next step in providing the necessary validations.

Daily meetings have been beneficial for clarifying doubts and sharing knowledge. I've completed the draft of the final summary of 5G capabilities for fully autonomous driving, which I consider a successful outcome after a month of work.

Personal development

I have acquired extensive knowledge of Autonomous Driving and 5G V2X technologies. The most valuable aspect for me has been the opportunity to apply my experience and knowledge to something entirely new. I have also gained insight into the process of creating a publication and presenting research findings and methodologies.

Knowledge and skills from university studies that I was able to utilize in my work:

Having strong programming skills benefited me in this week's work. The knowledge I gained from making documents in various assignments throughout my modules helped me to summarize my findings in the draft report that I've been working on. Additionally, the skills and the knowledge I've acquired in data analysis subjects were very helpful in obtaining the final deliverable and the findings.

Weekly report: Week 5 (2024-06-24 to 2024-06-28)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

This week, we focused on conducting a literature review and analyzing papers related to the same topic. Our goal was to identify gaps in the existing literature, locate related works, and lay the groundwork for our paper. I also concentrated on identifying the software we can use for drive testing and determining the parameters to be tested to validate our findings and models we are proposing.

Challenges faced during the period:

We faced challenges with accessing the Oulu 5G test network and also finding commercial software solutions. Since we needed to access the Oulu-specific network, it was the first challenge that needed to be acquired officially.

Solutions and successes:

We collaborated with the Wireless Technologies division to acquire data. I also went on my first journey in the 6G test car for autonomous driving and collected real-time data using open-source software.

We had a progress meeting to discuss the current implications and directions of our research. I received both positive and negative feedback on my findings, and we are exploring options for upcoming conferences where we can publish our paper.

Personal development

In terms of academic knowledge, I learned many details regarding machine learning. I also gained insights on how to publish a paper, which will be a massive advantage in my further pursuit of a PhD. The higher level of exposure also helped me to reshape my perspective on technology as well as on delivering the final output.

Knowledge and skills from university studies that I was able to utilize in my work:

The research methodology and the practice I gained from reading many scientific publications helped me to identify the key points, as well as the gaps and limitations, to enhance the novelty factor of our findings, and also on how to deliver things in a sensible and streamlined flow.

Weekly report: Week 6 (2024-07-1 to 2024-07-05)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

I had to adjust the machine learning sampling part and also had to read quite a few papers. The next step was to propose and justify the new model based on the research outputs, which included some flow diagrams and abstracts to showcase the threshold limits.

Challenges faced during the period:

In the actual contest, the challenges were very minimal this week, we hit some limitations which is unavoidable but the plan and order were there so we will be facing minimum challenges. What we consider as the challenge was the higher co-dependability which always drags the things and delays the outputs.

Solutions and successes:

I completed the ML model and finalized some architecture diagrams as the final milestones. To showcase our research findings, we began drafting a paper and adding data for the initial draft.

Personal development:

One key habit that I formed during this research assistant position is to read scientific. Literature review and selecting the papers was something which was lacking in myself, and this led me to gain practice and form some positive habits in reading, summarizing, identifying the gaps and gathering the key points.

Knowledge and skills from university studies that I was able to utilize in my work:

The experience of writing many papers has been very useful for this task. Following guidelines and staying organized has helped me to be creative, realistic, and bold in my writing when necessary

Weekly report: Week 7 (2024-07-8 to 2024-07-12)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

I focused on conducting more extensive research to identify the gaps and limitations in the current literature in order to develop the flow and narrative of our paper. At the same time, we explored ways to improve and justify our findings.

Challenges faced during the period:

This week was relatively challenge-free. The only challenge I faced was acquiring the necessary papers for my research. Sometimes accessing specific research papers can be difficult.

Solutions and successes:

I used a few free tools available for acquiring the papers and summarizing them, it was more efficient than I expected, and I have identified some key points which will be indirectly related to our context.

Personal development

I sometimes find myself working in a messy and multitasking way, handling different projects simultaneously. This week provided me with a great opportunity to focus on organizing my work, creating a more structured flow, and improving task distribution. As a result, someone else looking at my work will easily understand the process.

Knowledge and skills from university studies that I was able to utilize in my work:

I couldn't identify specific skills, tasks, or modules that directly contributed to my work. However, taking a holistic approach, I see that my university education provided the foundation for my understanding. As someone from an engineering background, the research approach was novel, and the methodology and delivery were unfamiliar. My university studies effectively bridged the gaps in my knowledge and ideology.

Weekly report: Week 8 (2024-07-15 to 2024-08-02)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Working period (start-end, number of hours): Mon-Fri from 9 to 4.30 (35+ hours)

Main tasks and duties during the period:

As my last working days approach, I have been working on writing a report detailing the work I have completed. The report includes a Word document, Colab files, and several diagrams. Additionally, I have created a data repository for future work, as well as for recreation and improvements.

Challenges faced during the period:

Going back to some of my own tasks was a bit challenging, but it went smoothly since I completed timely notes related to my work.

Solutions and successes:

I created a comprehensive report that encompasses all the tasks completed, findings, and deliverables.

Personal development

This entire journey has been quite an experience, especially when researching something I've never done before. There's always a lot of back and forth and self-doubt about the approach. This experience has been exactly what I was looking for before starting a PhD, and I'm grateful for the opportunity to grow.

Knowledge and skills from university studies that I was able to utilize in my work:

The academic content consisted of pure technical skills as well as other important skills such as analyzing, time management, prioritizing work, and teamwork. It made me realize that technical skills are essential, but without management and teamwork abilities, it is nearly impossible to complete most tasks. I'm glad that we have many group projects and modules to help us develop our management skills.

Weekly report: Week 9-10 and Future works (2024-07-22 to 2024-07-31)

Name and student number: Ekanayaka Widanage Prabhash Kumara Rathnayake 2305010

Practical training course name and code: 814601S Work Experience in ICT responsibilities

Employer: University of Oulu – Autonomous Driving Project

Main tasks and duties during the period:

As for our main goals and future work, we have identified the following: -

- Access the Sod5G test track to take proper measurements.
- Conduct multiple Drive Tests around Oulu using Nemo devices.
- Complete the publication with the proposed new models for V2X network.

Challenges faced during the period:

We faced significant challenges in collaborating and accessing certain facilities and instruments due to summer vacations. This posed a major drawback as we were unable to proceed without completing specific tasks, causing a delay in our original timeframe due to interdependence.

Solutions and successes:

Everything has turned out better than expected, and I would say it was worth my efforts and dedication toward this project. I created a dataset from my summer road trip to Norway, and that data was used in this research on comparing 5G networks on highways throughout Finland, Sweden, and Norway.
All the collaboration attempts were successful, and the paper will be providing new and improved findings to support our results.
I have achieved much more than our initial goals and objectives on this topic, broadening and deepening my initial objectives.

Personal development

It was a clear journey from the start on how to conduct research in the engineering or application-based domain. Everything from the beginning was a learning opportunity, and I was able to get to know some great people behind these projects. I consider it the most rewarding achievement and development I have gained from this project and summer internship. It taught me what it is to be a researcher, work on a research project, and how important it is to collaborate and make coherent connections and updates.

Knowledge and skills from university studies that I was able to utilize in my work:

I have utilized most of the skills I've learned during the two-month period. Coming from an Information Processing Science background, conducting analysis has always been within my comfort zone. The in-depth knowledge I gained through academic writing and exposure to project management and group work was highly applicable and very useful throughout the internship.

Study Records