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2000 Hours to Automate

Senior Project

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2000 Hours to Automate’s senior project aims to create and train a tool capable of transcribing lecture notes. Despite recent efforts to make technology more accessible to those who are hard of hearing, transcription services remain expensive, flawed, and not widely used. This also makes it more difficult for those who just wants a text to refer to, or have a difficult time keeping up while taking notes. Like many disability services, transcription benefits everyone. From my academic perspective this project will both help me tackle something I care about while gaining experience using Python, the pytorch library, and putting my practical skills gained from machine learning coursework to use. Both accessibility and machine learning are hot topics today, machine learning is making many problems that have impossible to solve previously now solvable, and accessibility is becoming both an important moral and legal issue. My college curriculum will uniquelly support my efforts to create this project with my team.

My college curriculum already has supported my past project efforts. I have picked up Python from a previous class CS2021 and am currently learning more about Machine Learning CS5137. I have also taken AI Principles nad Applications CS4033 which has given me some good background information that will useful during this project. One of my favorite courses, Software Engineering EECE3093C, has helped me develop problem solving skills as pertaining to software that support me whenever I work on a personal programming project. My coursework has supported my personal and professional experiences in regards to programming. There are specific experiences that I believe will help me complete this project as well.

My past work experiences are also one of the reasons I feel confident going into this project. I will also be leveraging a bit of skills I gained in project management and some the research I did while working at Oriana House during my last 2 co-op terms as an intern there. Over the last few years I have picked up the soft and technical skills needed to make our project idea a reality, or at least get a great start on the way. My soft-skills in project management will help me collaborate and properly source control the project. I am confident enough with Python to move past basic libraries and services. Lastly my coursework in machine learning will assist me during my project just as much as my project will help me with machine learning coursework. Not only am I prepared for this project but both transcription and machine learning are subjects I have a vested interest in. I am interested in all aspects of this project in regards to my professional future.

My motivation for this project stems from struggling with the very problem I look to resolve, I want to find ways to make auto-generated captions available in text format. I want to eventually improve the accuracy of them, and I want to make said tools available to use with any media hosted on any site. This project should also be a great talking point later on, people I interview with will be interested in what we did and how we did it. I am excited to learn more about applications of machine learning in general, there are many other applications of it I would like to explore and this project would be a great introduction to it. Machine learning and accesability could both be interesting career paths for me to take. Machine learning is a very infantile technology that has yet to been pushed near its limits, and I’d really like to be someone who does such a thing. Producing a tool that automatically transcribes text is something that would personally help me and many others.

My preliminary project approach to this will be to do research with my team to find out how training AI works, how it could be done with Python, and exploring ways to implement machine learning libraries to accomplish our goal. Pytorch seems promising for parsing and interpreting data, we will investigate this first. We will also design the overall application flow and research how to make this tool usable by those who would most benefit from it. If we can secure rights / permission, there are many great resources we can use to train our AI such as Kahn Academy, which is ideal because it is already captioned and covers a broad variety of subjects with various speakers. We expect to have a rough project that somewhat accomplishes this task by the end of the project, with us attaining greater understanding of machine learning. We would know we were done if our tool was able to flawlessly capture audio and display as text live and accurately in an accessible manner, but given how long that may take this may be a bit more of an iterative project. We would be happy to have all of the moving parts in place for machine learning and transcription though. Whether or not we have done a good job depends on the hours we put into the project, notes our advisor has for us, and whether what we make could help others, or at least help us help others later on.