

Active Optimization and Self Driving Cars

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ABSTRACT

Self driving cars hold the promise of making transportation safer and more efficient than ever before possible. They will also be among the most complex robotic systems ever fielded and thus require an unprecedented level of machine learning throughout to achieve their desired performance. These learners create an ever-changing environment for all algorithms operating in the system and optimizing their performance will become a perpetual activity rather than a one-off task.

I will present active optimization methods and their application in robotics applications, focusing on scaling up the dimensionality and managing multi-fidelity evaluations. I will summarize lessons learned and thoughts on future directions as these methods move into fielded systems. Finally, I will describe current efforts on self driving cars and give some views on the future of them.

BIOGRAPHY

Dr. Jeff Schneider is the engineering lead for machine learning at Uber's Advanced Technologies Center. He is currently on leave from Carnegie Mellon University where he is a research professor in the School of Computer Science. He has 20 years experience

developing, publishing, and applying machine learning algorithms in government, science, and industry. He has over 100 publications and regularly gives talks and tutorials on the subject.

Previously, Jeff was the co-founder and CEO of Schenley Park Research, a company dedicated to bringing machine learning to industry. Later, he developed a machine learning based CNS drug discovery system and commercialized it during two years as Psychogenics' Chief Informatics Officer. Through his research, commercial, and consulting efforts, he has worked with dozens of companies and government agencies around the world.



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