



Job Description

The Strategic Transport Analysis Team (STAT) at the Aramco Research Center—Detroit has internship openings, starting from May 2023. Year-round and summer interns are both acceptable. The candidates will be required to work onsite 40 hours per week. The work will focus on mobility modeling with an emphasis on energy and emissions analysis, connected and automated vehicles (CAV), large-scale traffic modeling and simulation, artificial intelligence (AI) and big data analytics. The specific research tasks include:

1. Develop a preliminary modeling framework for assessing nationwide energy and emissions implications of emerging mobility technologies
2. Assist with the development of simulation-based mobility digital twin and evaluate the performance of the model in terms of mobility and energy efficiency
3. Develop eco-driving and eco-routing algorithms under the mixed driving environment with the fleet of non-CAV vs. CAV, different levels of automation and fuel technologies including gasoline, diesel, battery electric, hybrid, and hydrogen fuel cell
4. Develop shared automated mobility algorithms including ride-hailing and ride-pooling and evaluate the performance of the algorithms in terms of energy efficiency improvement
5. Analyze the vehicle technology market, including vehicle automation, connectivity, sharing, and new energy technologies
6. Analyze Greenhouse Gas (GHG) life cycle emissions for different vehicle powertrain technologies under the connected and automated environment
7. Model the rebound effect of emerging mobility technologies on travel and energy demand
8. Assess energy and emission implications of transportation and fuel policies

Some of these tasks will be completed by collaboratively working with external partners, such as universities and national laboratories.

The ideal candidates are expected to have the following background:

1. B.S., M.S., or Ph.D. degree in Computer Science, Statistics, Engineering, and related areas (M.S. and Ph.D. preferred)
2. Proficient with python and familiar with at least one of the following programming languages: python, C++, R, SQL, and spark
3. Experience with machine learning, statistics, data science, traffic simulation, optimization, and/or geospatial analysis
4. Research experience in at least one of the following: CAV modeling, travel demand forecasting, signal optimization, vehicle market prediction, life cycle analysis, or shared mobility modeling
5. Good writing and communication skills
6. A proven publication record is a plus

If you are interested in this opportunity, please send your CV to jinghui.wang@aramcoamericas.com.



About Aramco Services Company

Aramco Services Company d/b/a Aramco Americas (“Company” or “ASC” or “Aramco”), headquartered at Two Allen Center, 1200 Smith Street, Houston, Texas 77002, was established in 1950 and is registered in the State of Delaware. ASC is a U.S.-based subsidiary of the Saudi Arabian Energy Company (“Saudi Aramco”). Saudi Aramco is a fully integrated, global petroleum and chemicals enterprise in the Kingdom of Saudi Arabia. ASC conducts a wide range of services to help Saudi Aramco facilitate the safe and reliable delivery of energy to customers around the globe.

ASC recently opened three R&D centers in the United States in Houston, Texas (“Houston R&D”), Cambridge, Massachusetts (“Boston R&D”), and Novi, Michigan (“Detroit R&D”) to support our innovation-oriented culture as well as energy research, technology development, and upstream and downstream operational reliability. These R&D centers are part of a global network of research centers to leverage scientific expertise and strengthen collaboration in providing solutions to Saudi Aramco research and technology challenges. The R&D centers closely align their goals with those of Saudi Aramco’s EXPEC Advanced Research Center and its Research and Development Center. The R&D centers assist the Company in engaging more closely with partners to bring solutions to the greater industry. The expanded approach is about collaboration and establishing strong, strategic relations with specialized centers of excellence to address far-reaching challenges.

ASC’s Detroit R&D Center conducts vehicle, engine, and mobility-focused research, develops next-generation liquid fuels for current and future global transportation needs, and delivers sustainable transport solutions. The Detroit R&D Center is near the nation’s leading automotive manufacturers and original equipment manufacturers (OEM) that help shape the future of the transportation industry.