# Towards AutoML for People

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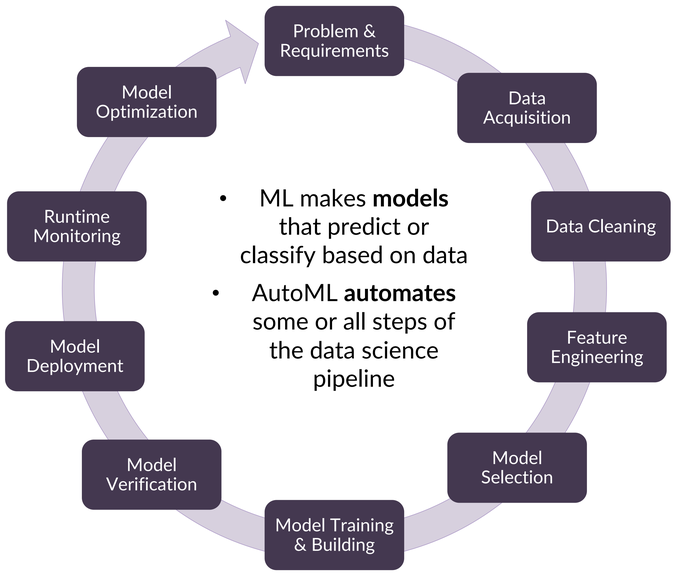
## What is AutoML?




- ML makes **models** that predict or classify based on data
- AutoML **automates** some or all steps of the data science pipeline

## Current AutoML Software

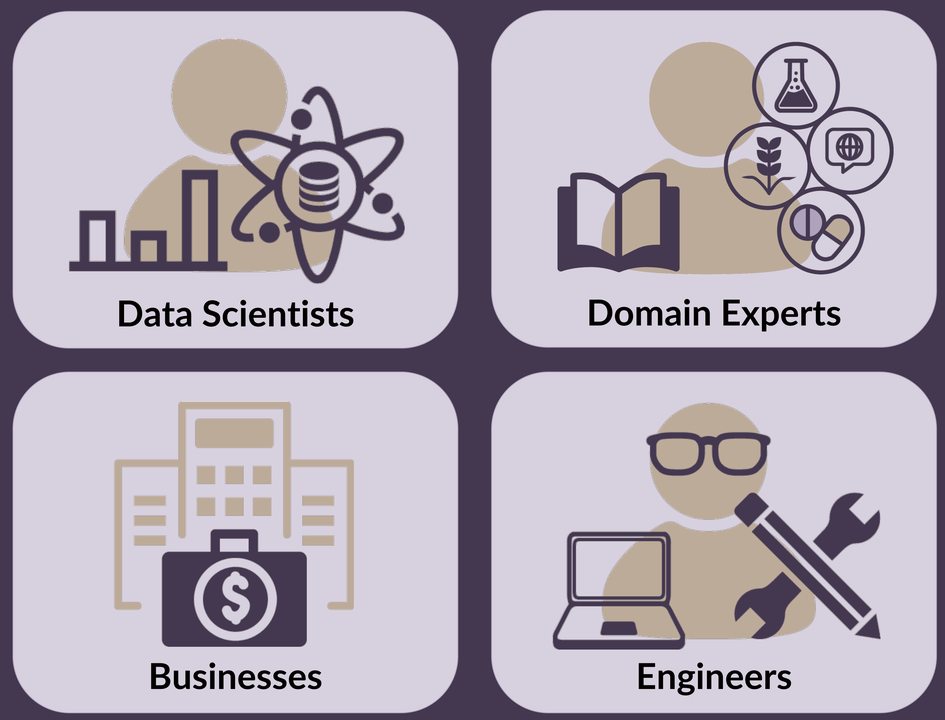
| Product | Features | Intended Users | Needed ML Expertise |
|---|---|---|---|
| amazon, IBM, Google, Azure | Entire pipeline except data collection | Anyone | Minimal |
| Qeexo | Entire pipeline, specifically for sensors | Sensor engineers | |
| OpenRefine | Data cleaning | Data scientists | None |
| TPOT, Auto-Sklearn | Model training, building | Data scientists | Moderate |

## Why?

- To streamline the DS/ML pipeline
- Allow users with **little data science expertise** to gain insights from data

**A better understanding** of AutoML systems' **users** and their **diverse needs** is critical in designing AutoML systems that **make data analysis accessible** to more people.

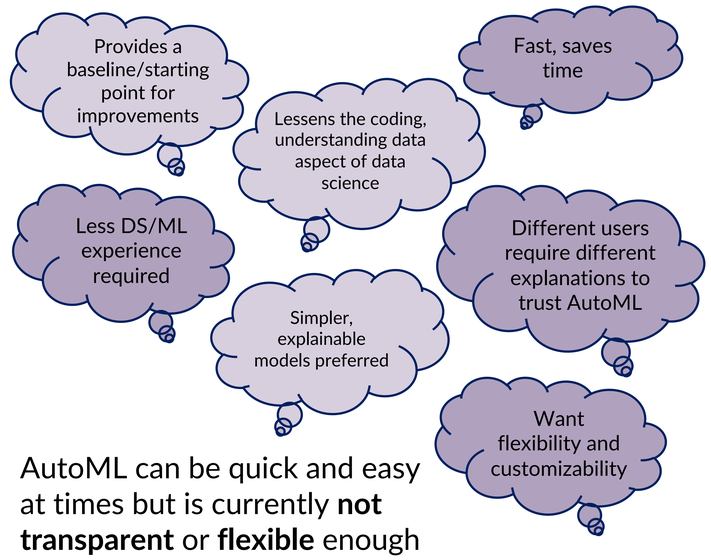
## Who?




**References**

**ATMSeer: Increasing Transparency and Controllability in Automated Machine Learning** by Wang et al. (2019)
**How Much Automation does a Data Scientist Want?** by Wang et al. (2021)
**Human-AI Collaboration in Data Science: Exploring Data Scientists' Perceptions of Automated AI** by Wang et al. (2019)
**Towards Human-Guided Machine Learning** by Gil et al. (2019)
**Trust in AutoML: Exploring Information Needs for Establishing Trust in Automated Machine Learning Systems** by Drozdal et al. (2020)

## User Perceptions

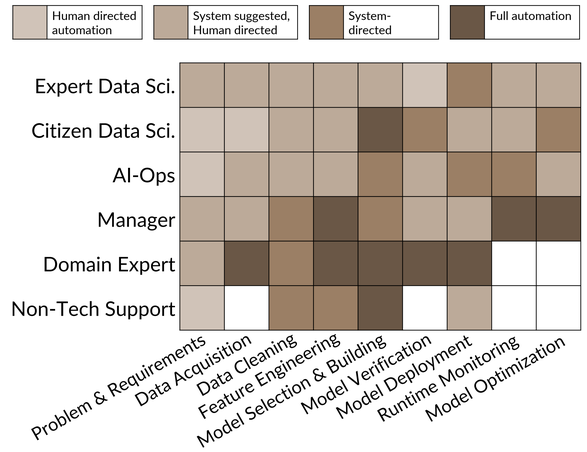



AutoML can be quick and easy at times but is currently **not transparent** or **flexible** enough for many users.

## How Much Automation?

- Different users want to see different levels of automation in each step of the process

**Most Frequently Preferred Level of Automation**




## User Considerations

| | |
|---|---|
| Expertise | • Transparency trade-offs, interface complexity |
| Priorities | • Time, cost, accuracy, willingness to learn |
| Goals | • Affects software capabilities, product diversity |

## Future Work

- Interview domain experts, businesspeople, engineers to learn their work practices and potential relationships with AutoML
- User studies with AutoML
- Determining users of commercial AutoML products and their usages and perceptions of it