Natural Language Parsing of Logic from Legislation (several projects)

The Project
Regulation as a Platform (RaaP) is an open platform of government legislation and regulation in the form of digital logic, or "computable regulation". This will provide a government maintained central reference of executable rules available through public APIs. App developers can then build upon these APIs to create "RegTech" applications such as compliance checkers, single-form permit applications or regulation analytics. The first step in generating regulation as logic is to apply natural language processing to legislation documents to extract logic rules, these rules are then reviewed, amended and eventually endored by domain experts.

For more information on the project please visit https://digital-legislation.net/.

Your Role
This project can be for either 6 or 12 units.
Depending on your interest and the needs of the project, there may be opportunities to work on:

- extending our legal parser to handle complex cases such as deeply nested clauses, numerics, and tables,
- other aspects of the project such as logic reasoning, visualisations, API or front end development.

You will be integrated with the RaaP development team as part of Data61's Engineering & Design group, and will be expected to participate in professional software engineering practices such as version control, unit testing, issue tracking and writing documentation. If you are willing to bring your creativity and enthusiam then we will commit to providing a supportive environment where you can extend your skills and achieve your best.

Required Skills
We welcome applications from motivated students undertaking study in Software Engineering, Computer Science, or related degrees, who are in their final or penultimate years of study.

- Essential: at least one of Scala or Haskell or Javascript
- Desirable: source control (git)
- Experience or interest in any of the following will help:
  - Natural language processing
  - Logic / formal methods
  - Legal informatics

About Data61 and the Engineering & Design group
Data61 is a business unit of of CSIRO and Australia’s leading digital research network, working with partners across government and industry to solve challenges, find efficiencies and innovate. A lot of the work we do involves making more high-value government data accessible to businesses and the public, while preserving privacy.

Data61's Engineering & Design group is focussed on taking solutions usually built upon many years of research and getting them out the door into the hands of business and government. We do this through applying high quality software engineering practices combined with customer focussed user experience design. We are a social and collaborative group, and you can frequently find us talking cofunctors over coffee and personas over pizza.

Typical Meteorological Year

The Web Geospatial Systems (WGS) team at CSIRO's Data61 have built the Australian Renewable Energy Mapping Infrastructure (AREMI) platform for the Australian Renewable Energy Agency. The AREMI mapping platform is available at:

http://nationalmap.gov.au/renewables/

The AREMI platform federates geospatial datasets for the renewable energy industry from a large number of data custodians, including the Department of Environment and Energy, the Australian Energy Market Operator, Geoscience Australia, and many more.

The Project
As part of the AREMI platform, Data61 has created a data set known as a Typical Meteorological Year (TMY) using weather observation data from Bureau of Meteorology (BoM) One Minute Solar weather station observations, using the Sandia Method.

The aim of this internship is to extend this work from the BoM One Minute Solar data, which is very limited, to using the full BoM Automated Weather Stations (AWS) dataset, and then combine this with the our BoM Solar Satellite dataset in order to greatly extend the coverage.

The Team
You will be integrated with the WGS development team as part of Data61's Engineering & Design group, and will be expected to participate in professional software engineering practices such as version control, unit testing, issue tracking and writing documentation. If you are willing bring your creativity and enthusiam then we will commit to providing a supportive environment where you can extend your skills, learn new technologies, and achieve your best.

Your Role
This project can be for either 6 or 12 units.
We welcome applications from motivated students undertaking study in Software Engineering, Computer Science, or related degrees, who are in their final or penultimate years of study.
Experience or interest in any of the following will help you in this role:

- Haskell
- Python
- Scala
- Statistics
- Source control (git)

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Open data user research internship

The project
At Data61, we spend a lot of time thinking about how data is created, how people find and share and work with data, and what the impacts are of data and data-driven technologies. We're looking for an intern to conduct a user research project that will help further our knowledge of people working in the field of open data.

The project aims to:

- Gather existing Data61 user research and develop a wider, more comprehensive understanding of the variety of people and contexts within the open data ecosystem,
- Extract findings and insights to support designers designing for open data users, data scientists producing outputs from open data, or anyone wanting to influence open data policy decisions,
- Publish findings in a format that allows people with specific open data use cases in mind to quickly filter for relevant insights and guidance.

Why do this research?
"While it is easy to get distracted by discussions of new technology or software products, our research highlights the significant human dimension involved in getting more value from data. Changing organisational cultures, and solving problems with data, is as much about the people as it is about the technology. Creating a link between end-user and data analyst/scientist is a vital aspect of creating impactful and actionable data insights."
-- Wise Council: Insights from the cutting edge of data-driven local government

The ultimate aim is to develop a set of rich, practical guidance that exposes the human dimension involved in getting more value from data and data-driven technologies.

What's involved
The project will be based on identifying a core set of common open data use cases, and then finding, analysing and mapping real-world examples of those use cases. Existing Data61 projects will also be mapped against the discovered categories, from which gaps in our current knowledge can be identified and earmarked for further research.

We will then help the researcher to analyse, document and publish their findings, revealing characteristics of open data users and insights that will support designers, engineers and policy-makers working within the open data ecosystem.

This will be a 6-unit internship.

About you
You have a keen interest in design, UX, ethnography, anthropology and/or social sciences. You're also interested in the application and impact of technology on people. Previous experience in working with data, especially open and/or spatial data, would be beneficial but not essential. You don't need to know how to code, and visual design skills are optional.

If you think you might be interested, apply!

About Data61 UX

Data61 is a business unit of CSIRO and Australia's leading digital research network, working with partners across government and industry to solve challenges, find efficiencies and deliver innovation. As part of Data61's Engineering and Design group, the UX team is responsible for understanding people and their needs, and designing for maximum impact, usability and satisfaction.