Employment Trends: Desirable Applicant Skills of Physics Degree Holders

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Internship Goals

Create and catalogue a database of job postings from the APS Job Board

Perform a quantitative analysis of keywords common to job descriptions

Examine correlations between skills and factors such as employment sector and job permanence
Project Approach
- Existing Tools Could Analyze Our Data
- A Custom Solution is Better
- Identifying job sector and job permanance with Excel
- Preprocessing Improvements
Technical Choices

Simple, high level language that acts as a base for the program
- Python

Fast, locally stored database system to store and query job data
- SQLite3

Efficient data processing module to import and export job data
- Pandas
Data Processing GUI

Import Menu

Find Keywords

Analyze Data

Results
RESULTS

Job permanence by sector for all APS Job Board Postings since 2018 (1463 jobs)

- **All Sectors**
  - Temporary: 482
  - Permanent: 981

- **Academic**
  - Temporary: 239
  - Permanent: 428

- **Government**
  - Temporary: 232
  - Permanent: 291

- **Private**
  - Temporary: 24
  - Permanent: 269

Legend: Temporary, Permanent
Comparisons of Keywords by Sector*
[Selected Terms with Standard Deviation > 15%]

*this data does not show analyses for nonprofits and other sectors
Comparisons of Keywords by Sector*
[Selected Terms with Standard Deviation < 0.1%]

*this data does not show analyses for nonprofits and other sectors
Comparisons of Diversity Keywords by Sector*
[Selected Terms]

*This data does not show analyses for nonprofits and other sectors
Conclusions

01. Job Permanence
   Private sectors have far fewer temporary jobs

02. Sector Terms
   Academic and R&D terms appear as expected

03. Government Terms
   Experiment appears more in government jobs, and about equally in other sectors

04. Diversity
   Trends in diversity terms by sector vs job permanence
Next Steps

**Further Analyses**

Analyze job data based on degree requirements, job level, and/or location

**Development**

Integrate pre-processing into the job data tool and add ability to intelligently identify imported columns.
Any Questions?

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