Gov Poster Session

How to Communicate Research in Writing and on a Poster

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Fall 2017

Excerpts from “How to Do Research in Technology Science”.
How is research actually done?
Iterative Approach

start

Problem Statement

Prototype/Experiment

Construct Prototype Or Conduct Experiment

can improve

Testing

need a new idea

end
How is research described?
Conventional View of Research Process

- Research Topic
- Research Problem
- Problem Statement
- Construct a Solution or Design an Experiment
- Results

New researcher
Veteran researcher
Example: SSNs in Resumes

• Research Topic
  Identity Theft

• Research Problem
  Information needed for a fraudulent credit card application or tax return is name, date of birth, and SSN?

• Problem Statement
  Are name and SSNs freely available online?
Conventional Way of Research Process

- Problem Statement
- Construct a Solution or Conduct an Experiment
- Results

How is a research paper written?
# Scientific Writing

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>Summarize entire paper.</td>
</tr>
<tr>
<td>Introduction</td>
<td>Motivation. Importance.</td>
</tr>
<tr>
<td>Background</td>
<td>Relationship to prior work.</td>
</tr>
<tr>
<td>Methods</td>
<td>Describe methods of problem construction or experimental design</td>
</tr>
<tr>
<td>Results</td>
<td>Show results. Include graph.</td>
</tr>
<tr>
<td>Discussion</td>
<td>Describe significance of results.</td>
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</table>
Scientific Writing

Abstract

Introduction

Background

Methods

Results

Discussion

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Tell a story
Elevator Story Litmus Test

The “elevator story litmus test” reflects whether the thesis of the paper is sufficiently interesting. The idea is based on the following scenario.

Suppose you are on an elevator with Bob, who asks what your paper is about. You have until the elevator ride ends (your abstract) to convince Bob to come and hear your talk. Given just your abstract, will Bob want to hear more?
In the United States, a person’s Social Security number (SSN) is a linchpin to his credit, educational, tax, employment, and other records. Numerous U.S. regulations designate a person’s SSN as private information. Would people actually publish their SSNs publicly online? We searched for online resumes containing SSNs using the 30 most popular last names in the United States. We found SSNs on the first page of search results for 29 of the 30 names searched.
<table>
<thead>
<tr>
<th>Introduction</th>
<th>Impersonating a person in the United States usually involves knowing his Social Security number (SSN). So, would anyone actually make their SSN public?</th>
</tr>
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<tbody>
<tr>
<td>Background</td>
<td>Motivate the paper. Why is this the most important paper in the world.</td>
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A U.S. Social Security number (SSN) is private information that allows others to identify a person’s credit report [1], educational record [2], driver’s license record [3], health record [4], tax record [5], employment record [6], and so on. Assigned at birth, virtually all Americans have Social Security numbers [5] and SSNs remain unique to the person beyond death [6]. Federal regulations restrict sharing of SSNs, so it seems unlikely to find SSNs publicly available.

Provide **prior contextual knowledge** the reader needs to know to understand and appreciate the paper.
In 2005, Sweeney conducted web searches using the string “SSN vitae” and found large number of links to online resumes that contained SSNs [7]. In a rigorous public campaign that followed, thousands of SSNs were subsequently removed from the Internet [8]. Today, the same search yields web pages about SSNs and resumes but not resumes containing SSNs. Are resumes having SSNs no longer available?

Provide prior methodological knowledge the reader needs to know to understand and appreciate the paper.
| Introduction | Our approach is simple. We start with a list of the 30 most common last names in the United States, as provided by the U.S. Census Bureau [7]. We perform a Google search on “SSN vitae lastname” for each of the 30 most popular last names. We capture images of the screen results for each search and record whether an SSN was visible in the first 20 results that appear on the first page. |
| Background |
| Methods |
| Results |
| Discussion |

Describe in a stepwise manner how to conduct the study. Reading this section, a person should be able to replicate what you did.
We found SSNs visible on the first page of web results for 29 of the 30 searches. Five SSNs were found for Jones and none was found for Hernandez. The average page had 2.

Report results. Almost always include a table or graph.
<table>
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<th>We found SSNs publicly available on the Web using the simple search “SSN vitae lastname”. These people are vulnerable to identity theft.</th>
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<td>Methods</td>
<td>In future work, we could check whether the SSNs are actual SSNs, how many SSN containing resumes may be online, and whether the person would remove the SSN if notified. We could also check whether the online information included date of birth, which is necessary for most forms identity theft.</td>
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Describe why the paper is significant and then, list its limitations (often as next steps).
Writing exposes ways to improve your research.
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Find Better Sources
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**Introduction**

SSNs are publicly available on the Web and can be easily found using the simple search “SSN vitae lastname”. These people are vulnerable to identity theft.

**Methods**

In future work, we could check whether the SSNs are actual SSNs, how many may be available, whether the person would remove the SSN if notified, and whether the online information included date of birth, which is necessary for most forms of identity theft.
Poster Review

The parts of an academic paper appear on the poster.
**Title here**  
*Name of author(s)*  
Email

<table>
<thead>
<tr>
<th>ABSTRACT</th>
<th>MATERIALS &amp; METHODS</th>
<th>RESULTS</th>
<th>CONCLUSIONS</th>
</tr>
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| **The big idea in a couple of sentences!** | **METHODS and RESULTS**  
What did you do and how did you do it!  
Maybe  
Important picture here! | **What did you find (or expect to find)!**  
Important picture here! | **What was learned!**  
What you or someone might do next. |
| **INTRODUCTION**  
Why is this the most important thing!  
What reader needs to know to understand work. | | |

**REFERENCES**
Poster Communication
Efficient Communication

What is a title for your project?

Why is your project interesting or exciting?

What do you think you will find?