

Authoritative Venues

Ali Youssef, Bella Marku, Kyle Forst, Tanner Spicer
CS 4624: Multimedia, Hypertext, and Information Access Capstone
Dr. Edward A. Fox
Virginia Tech, Blacksburg, 24061
April 22, 2021

Presentation Outline

- Background Research
- Project Requirements
- Deliverables
- Data and Results
- Live Demo
- Testing and Assessment
- Timeline and Lessons Learned
- Conclusion
- Acknowledgements and References




Background Research

- Choosing a publication venue for Computer Science research can be difficult and overwhelming
- Both conferences and journals are valid venues
- Cons of each venue:
 - Conferences: lack of thoroughness in review
 - Journal: slow review and publish time
- Some websites exist that rank venues, but none exist that provide customized recommendations



Project Requirements

- Harinni Kumar, a former grad student at VT, developed a basic venue recommender system
 - Goal: work with Dr. Cliff Shaffer and Harinni Kumar to further develop and refine the venue recommender
 - Impact: Helps researchers decide where to submit their findings and measures which venues are more impactful
- 



Project Deliverables

Recommender Web Application

A functioning web application, hosted 24/7 on one of Virginia Tech's virtual machines

Repository of Code and Documentation

Located on Github with clear organizational structure and thorough README file. Source code written in Python.

Final Report

Includes information about the completion process, a User's Manual, and a Developer's Manual

Venue Data

Conf Acronym	Conference Full Name	Venue terms
ACL	Annual Conference of the Association for Computational Linguistics	Computation Linguistics
ECCV	European Conference on Computer Vision	Computer Vision
SIGGRAPH	Special Interest Group on Computer Graphics	Computer Graphics
SIGDOC	Special Interest Group on Design of Communication	Design of Communication
SIGCSE	Special Interest Group on Computer Science Education	Computer Science Education
SIGIR	Special Interest Group on Information Retrieval	Information Retrieval
SIGMOD	Special Interest Group on Management of Data	Management of Data
SIGMETRICS	Special Interest Group on Measurement and modelling of computer systems	Measurement and modelling of computer systems
SIGSOFT	Special Interest Group on Foundations of Software Engineering	Software Engineering

Conference to Venue Mapping

sno	1000
entry_id	1732691
title	Finding and exploiting goal opportunities in real-time during plan execution
ccs	NULL
kw	NULL
category	NULL
abstract	Autonomous robots that operate in real-world...
ftext	NULL
conference	Proceedings of the 2009 IEEE/RSJ international conference on Intelligent robots...
venue	eee/rsj intelligent robots and systems
entry_date	2009-10-10
authors	Paul Schermerhorn

Format of Paper Data

Ranking System Implementation

- Input: a paper title and abstract
- Output: a list of venues, grouped by topic, that are relevant to the paper
- Chosen approach for improved ranking system:
 - Individual venues within each group will have their h5-index listed (number of N papers published with at least N citations in the last 5 years)



Scraping H5-Index Data

```
Found CRYPTO h5-Index: 52
WG
Found WG h5-Index: 13
EUROPAR
Found EUROPAR h5-Index: 20
ICPP
Found ICPP h5-Index: 22
UIST
Trying Full Name
PLDI
Found PLDI h5-Index: 46
ISWC
Trying Full Name
CASCON
Trying Full Name
Cannot find venue CASCON
AAAI
Found AAAI h5-Index: 126
AI
Found AI h5-Index: 126
FSKD
Found FSKD h5-Index: 2
SP
Found SP h5-Index: 5
```


Running the scraping program

Venue Acronym	Venue Full Name	h5-Index
AAAI	Artificial Intelligence	126
AAMAS	Autonomous Agents and Multi-Agent Systems	23
ACCV	Computer Vision	33
ACE	Computing Education	6
ACISP	Information Security and Privacy	16
ACL	Computation Linguistics	135
ACMSE	Southeast	Cannot find venue
ACSAC	Security Applications Conference	28
ACSD	Application of Concurrency to System Design	0
ACTA	Informatica	100
ADAEUROPE	ADA	5
ADBIS	Databases and Information Systems	14
ADC	Database	27
ADES	Engineering Software	74
AI	Artificial Intelligence	126
AICI	Artificial Intelligence and Computational Intelligence	Cannot find venue
AIIM	Artificial Intelligence in Medicine	39
AINA	Information Networking and Applications	26
AJCL	Computational Linguistics	26
AJIF	Automatica	103

Data is stored in an Excel file



Flask Website Implementation

- Recommender UI is currently implemented using Flask, a Python web application framework
 - VM reserved via VT's Computer Science Research Virtual Machines program (CSRVM)
 - DNS name: `authvenue.cs.vt.edu`
 - Virtual machine specifications:
 - 4 cores
 - x86_64 architecture
 - 16 GB RAM
 - 1 TB Disk Space
 - CentOS 7
- 

Flask Website Implementation

- Web Server: NGINX
- Web Server Gateway Interface: Gunicorn

```
● nginx.service - The nginx HTTP and reverse proxy server
  Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; vendor preset: disabled)
  Active: active (running) since Tue 2021-04-20 13:49:54 EDT; 21h ago
  Main PID: 32739 (nginx)
  CGroup: /system.slice/nginx.service
          └─32739 nginx: master process /usr/sbin/nginx
             └─32740 nginx: worker process
                └─32741 nginx: worker process
                   └─32742 nginx: worker process
                      └─32743 nginx: worker process

Apr 20 13:49:54 authvenue.cs.vt.edu systemd[1]: Starting The nginx HTTP and reverse proxy server...
```

Website Layout

ACM Venue Recommender

Computing in Robotics

novel framework for lane keeping system for autonomous driving vehicles. The method presented in this paper guarantees stability of the vehicle in presence of bounded

Recommend


User inputting paper title and abstract

AI	Fuzzy Systems	Computer Graphics
EXWA H5-Index: 11	ICICTA H5-Index: 14	SIGGRAPH H5-Index: 19
AAAI H5-Index: 126	ICISC H5-Index: 13	ITVC H5-Index: 70
IJIS H5-Index: 48	FSKD H5-Index: 2	ISVC H5-Index: 16
ICIS H5-Index: 30		CGI H5-Index: 8
ICTAI H5-Index: 19		DIS H5-Index: 8
More venues		More venues

Results shown after running recommender



Testing and Assessment

- Tested functionality in different web browsers on both mobile and desktop
 - Tested with nonsensical/irrelevant input to ensure the application does not break
 - Accuracy of output checked using confusion matrices
- 



Timeline Overview

January

Initial meetings and preliminary research

- Initial communications with Dr. Shaffer and original problem statement
- Research on possible pre-existing solutions and/or useful resources and APIs

February

Change in direction and additional client

- Research found pre-existing solutions
- Introduced to second client Harinni to expand upon her existing grad project
- Getting data and updating our project direction

March

Initial work on models and virtual machine

- Walkthrough of code with Harinni
- Work on models and ranking system for the recommender
- Receiving the virtual machine for hosting the web application

April

Completion of ranking system and web application

- Completion of ranking system for the recommender
- Development and deployment of Flask web application on the virtual machine
- Final meetings with Dr. Shaffer and Harinni

Lessons Learned

- Had to narrow scope of project and remove plans to adjust machine learning models
- New skills: Keras, NGINX, web scraping
- Weekly team meetings were key in making progress
- Improvements we could have made:
 - Communicate with sponsors more frequently
 - Designate more time towards working with machine learning models




Conclusion

- Recommender website is functional and provides relevant venues and their h5-indices for CS researchers looking to publish their work
- Website hosted on VT virtual machine and can be easily updated or adjusted in the future
- Ideas for the future:
 - Improve on machine learning models like originally planned
 - Add more information specific to CS education as originally suggested by our sponsor





Acknowledgements

- Harinni Kumar, graduate of VT's Computer Science and Application MS program. "ACM Venue Recommendation System" thesis submitted May 2020.
 - Dr. Cliff Shaffer, Associate Department Head for Graduate Studies and Professor of Computer Science at Virginia Tech.
- 

References

- Kumar, H. 2020 “ACM Venue Recommendation System.” Thesis for Master of Science in Computer Science and Application. May 13, 2020.
- Ellingwood, Justin. [“How To Serve Flask Applications with uWSGI and Nginx on CentOS 7”](#). Digital Ocean, March 20, 2015.
- SteelKiwi Inc. [“Flask vs. Django: How to Understand Whether You Need a Hammer or a Toolbox.”](#) Medium, October 4, 2019.