Northwestern | SCHOOL OF COMMUNICATION

Computational Journalism Lab

AI-Driven Lead Recommenders for Science Journalists

Sachita Nishal and Nick Diakopoulos

Modern challenges in science journalism

The evolution of the science journalist

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The evolution of the science journalist

Changing attitudes to science

A shift from “gee-whiz” reporting and “fan-boy coverage” in the 60s/70s to “**independent inquiry** into the scientific enterprise and the illumination of research with all its **wonderfully complex human interactions**” (Blum, 2021)

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New responsibilities

Science journalists have also taken on **a variety of new roles**, such as those of the **curator, the civic educator, the public intellectual, the watchdog,** etc. (Fahy and Nisbet, 2011)

Modern challenges in science journalism

A changing media landscape in the digital age

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Novel modes of engagement with sources and audiences

Web-savvy journalists have the opportunity to **tap into new informational networks** and **facilitate greater dialogue and transparency** about science via the internet (Allan, 2011)

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A changing media landscape in the digital age

Novel modes of engagement with sources and audiences

Web-savvy journalists have the opportunity to **tap into new informational networks** and **facilitate greater dialogue and transparency** about science via the internet (Allan, 2011)

… but also more noise on the internet that impacts reporting

“A dizzying array of **science information, misinformation, and commentary** that can be hard to sort through” (Russell, 2009)

Modern challenges in science journalism

And the exploding volume of scientific output itself!

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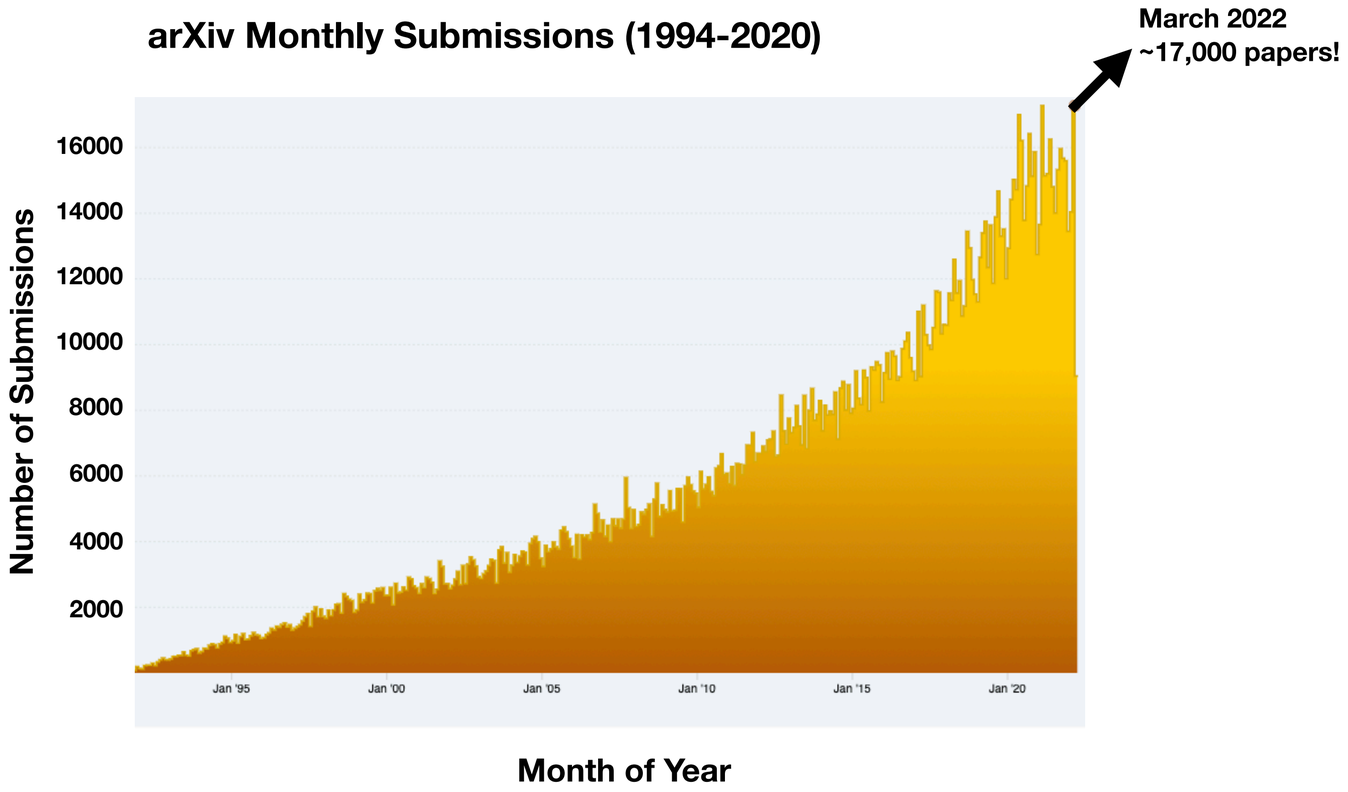


How can we support science journalists as they grapple with this firehose of information from various sources, sift through it for relevant leads, and try to kick-start the news process?

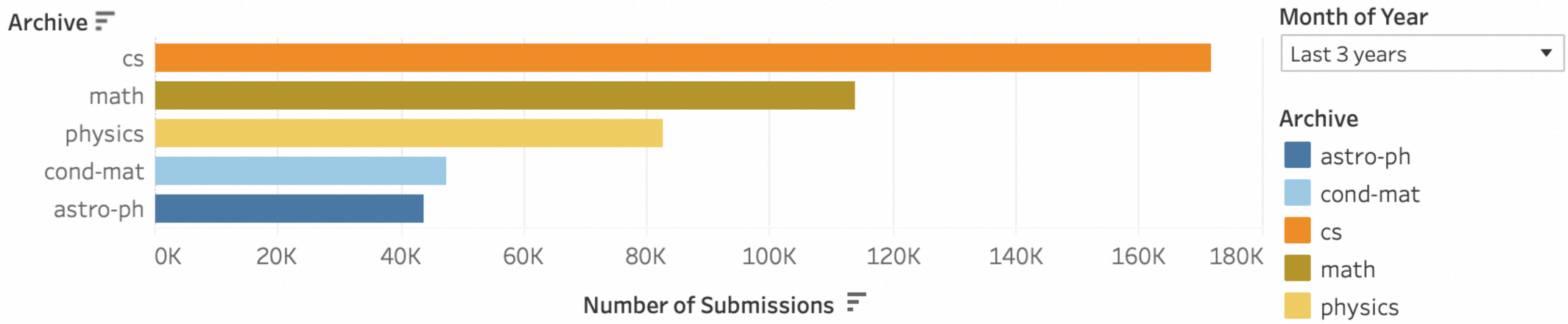
Computational News Discovery

“The **use of algorithms** to **orient editorial attention** to **potentially newsworthy events** or information prior to publication” (Diakopoulos, 2020)

Computational News Discovery

"The **use of algorithms** to **orient editorial attention** to **potentially newsworthy events** or information prior to publication"

Scope of our work: CND for **arXiv pre-prints** in the **Computer Science category**, and with more newsworthy sub-categories that we selected.



Building automatic lead recommenders

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Design Goals

- Provide time and information subsidies
- Personalize to journalistic interest
- Ensure journalistic autonomy

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Implementation

Develop ML-driven pipeline to **suggest newsworthy research** that is **relevant to specific publications** that journalists would like to write stories for.

Contextualize potential leads, and provide a **news angles for creative story ideas**

Deploy the recommender with professional journalists and **collect feedback** for design iterations

Lead recommender pipeline

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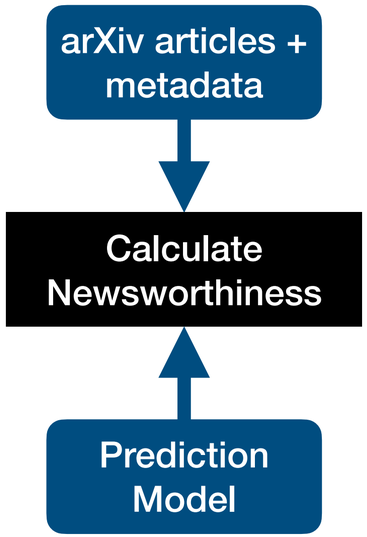


Measuring newsworthiness

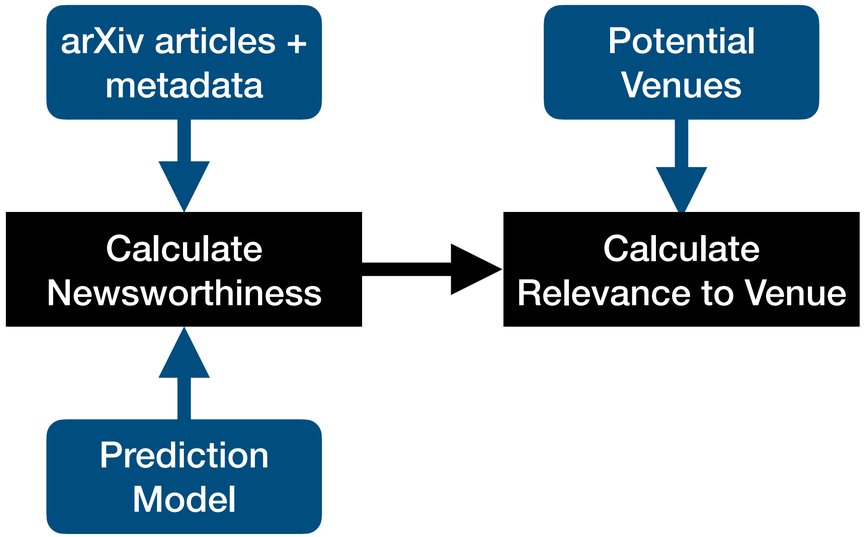
In our previous work (Nishal and Diakopoulos, 2022), we have demonstrated that non-expert crowd-workers can recognise certain **news values in scientific abstracts**, and that these **correlate moderately well with expert journalists' judgments**.

- Actuality
- Controversy
- Impact Magnitude
- Impact Valence

We aggregated these news values to obtain a **crowd newsworthiness score,** and trained a Random Forest model to **predict it using the text of scientific article**. Prec@K=10: 80%

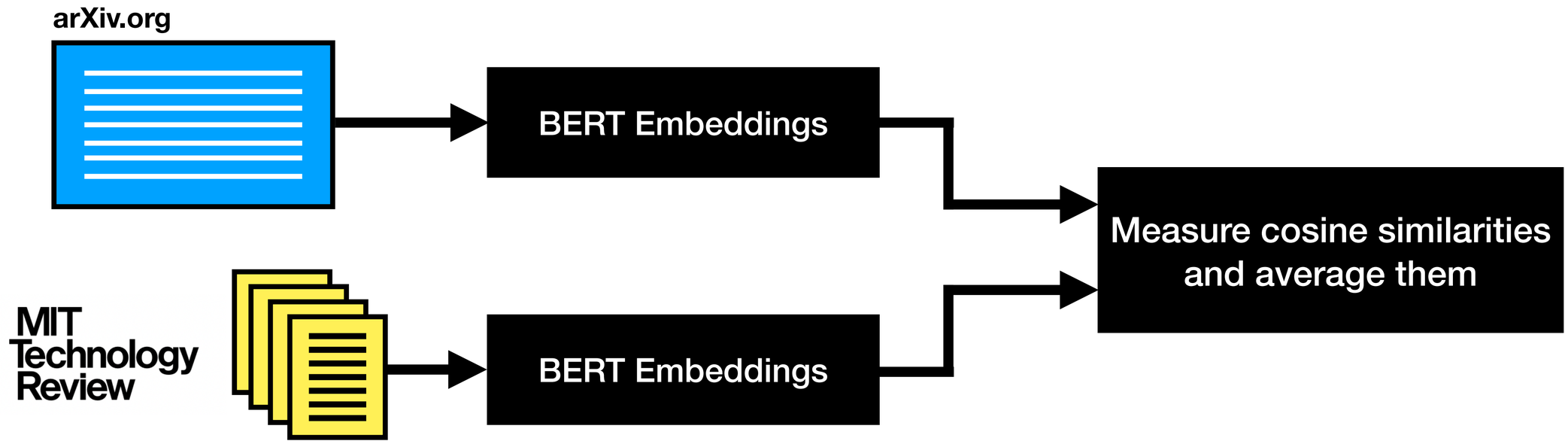
Nishal S. and Diakopoulos N. 2022. From Crowd Ratings to Predictive Models of Newsworthiness to Support Science Journalism. In Proceedings of the ACM on Human-Computer Interaction. CSCW (2022) **(forthcoming)**

Lead recommender pipeline



Personalizing to publication venues

We collect **historical data from thirty news outlets** that cover stories in science and technology + measure the **similarity of a given research abstract** to their published stories.



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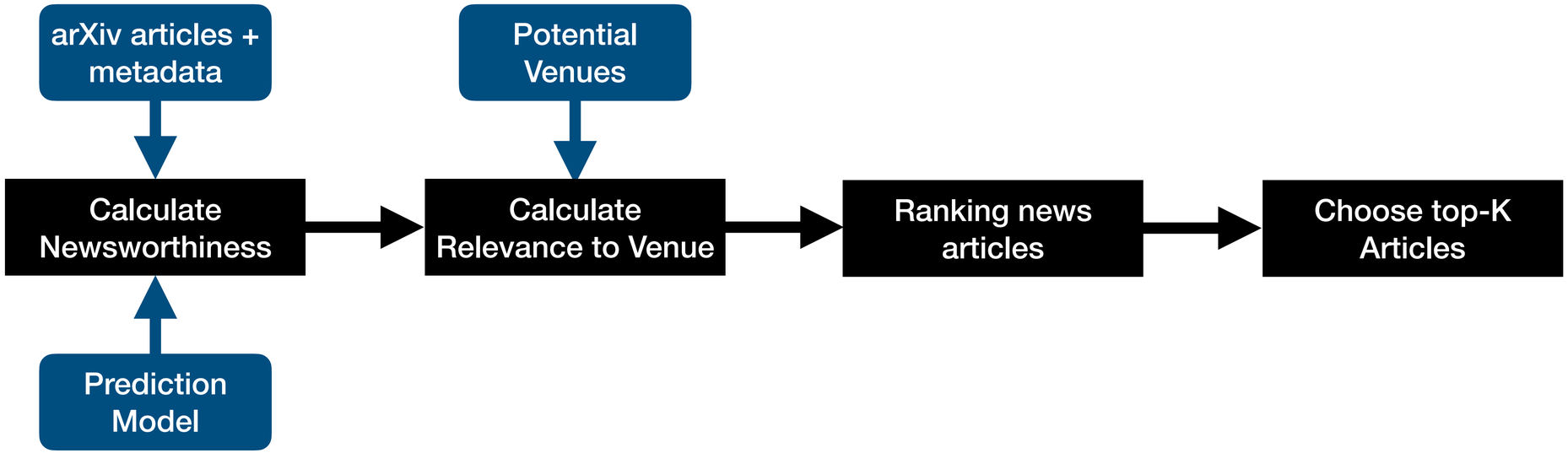

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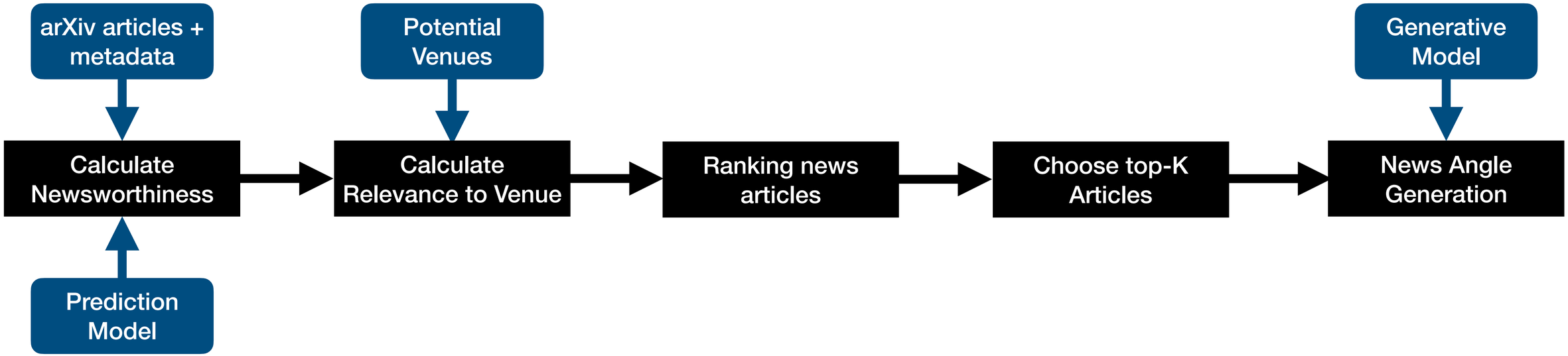
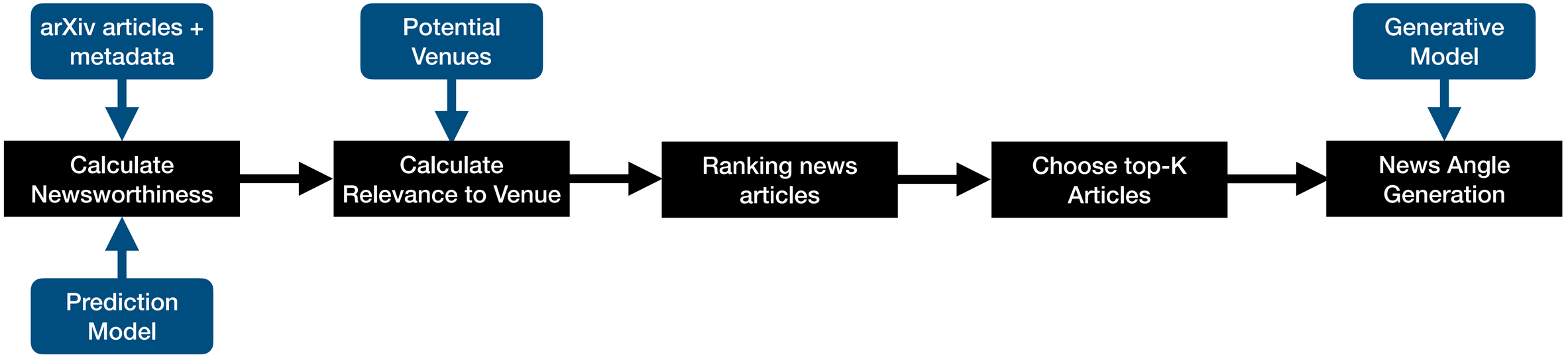


News angle generation

Fine-tune a pre-trained GPT-3 model to **generate news angles** based on the **title and the abstract of a given article**

Assess predictions on the basis of **automated metrics** and the judgements of **human evaluators**

Lead recommender pipeline



Deploy with professional journalists
+
conduct semi-structured interviews

Deployment studies

Recruit science and technology journalists, and **collect feedback** about the recommender system using deployments and semi-structured interviews.

User-interface is currently under development, and we are **actively looking for journalists to participate** in our study!

If you or anyone you know might be interested, **we'd love to hear from you**!

Get in touch!

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