

## **Signing in to the Digital Age: BU Professor receives grant to develop AI-based ASL advancement tools**

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Though American Sign Language (ASL) has been recognized as a language since the 1960s, a learning gap remains as many individuals struggle with a language with no written form. Especially in the digital domain, the language and its natives lack accessibility compared to hearing users.

Most ASL dictionaries are organized by English translation— meaning that users can only look up something they already know the meaning of or understand the sign. In most instances, people do not.

[Carol Neidle](#), a linguistics professor at Boston University's College of Arts and Sciences, spends her time researching interface sign recognition in hopes of improving such ASL resources. Previously, Neidle worked with computer scientists to create [SignStream](#), a digital database displaying ASL signing videos that are linguistically annotated.

Neidle, along with collaborators [Dimitris Metaxas](#) of Rutgers University and [Matt Huenerfauth](#) of Rochester Institute of Technology, is currently working on a computerized program that can perform video anonymization and detect and search for signs via webcam or video clip.

The researchers received a \$750,000 grant from the [National Science Foundation Convergence Accelerator Program](#) to further the recognition aspect of their prototype.

“The idea of this particular grant is to take the scientific achievements that we’ve come up with and put them to use for practical applications that can be of benefit to deaf people,” Neidle said. Her vision is founded on two problems in the deaf community she wishes to bring to light.

The first main goal of the project is to “enable signers to anonymize ASL videos while preserving the essential linguistic information conveyed by hands, arms, facial expressions, and head movements,” Neidle explained.

A significant problem in the deaf and hard of hearing (DHH) community is how ASL signers are unable to communicate anonymously through videos, for example, about sensitive topics. “Deaf people really want to be able to have anonymity if they need to submit a question about a medical issue,” Neidle gave an example.

With Neidle's proposals for an anonymization method, ASL technologies will be able to embrace other applications in which identity protection is necessary.

Neidle said her next focus for the project is to create a technique for searching by video example, "Software for identifying signs from video input would enable keyword search for signers."

This new tool can import any video file containing a sign you don't know and offer the user its top matches within a sign bank based on gesture and facial recognition. The mechanism ideally creates the first searchable ASL dictionary if the correct sign is found.

With this recent NFS funding, Neidle aims to solidify the practicality of the research, "We have extended our research to development of applications that can have real-world impact."

As Neidle progresses in her ASL technology, the professor sees a world where her tools can "enhance access to digital information, empowering Deaf individuals personally and professionally."

Neidle said, "It's been a real revolution to understand how there can be such analogies between spoken language and sign language."