Slide-to-Lecture-Video Search on SCPD Database
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Motivation

In SCPD database it is hard to locate the time stamp where professor was talking about a particular concept, equation, graph, etc. Enabling slide-to-video search would be very helpful to students reviewing after class.

Related Work


Future Work

• Train Fisher Vector with text images to better distinguish between slides
• Find ways to segment slides before searching so as to exclude clutter
• Test on searching elements from slides, e.g. graphs, equations.

Experimental Results

Indexing Video vs. Indexing slides
20hr videos
227MB memory
18% p@1

955 database images
3MB memory
90% p@1

Testing with NVIDIA SHIELD
0.24s Load data
2.42s Feature extraction
1.32s Revv search
4.41s Geometric Verification

Test It!

MITRE tracks vulnerability disclosures

Preventing hijacking attacks
1. Fix bugs
   —Automated tools: Coverity, Polyscript/Proof
   —Rewrite software in a type safe language (Java, ML)
—Difficult for existing buggy code...
2. Concode overflow, but prevent code execution
3. Add runtime code to detect overflows exploits
   —Halt process when overflow exploit detected
   —Staging/Outsourcing, Libsafe, ...

REVV-based mobile visual search

Training

SIFT Features

Codebook Training

REVV

Query

SIFT Features

Database

Annotated Video Database

URL & Time

Matching Slide

Geometric Verification

Short List