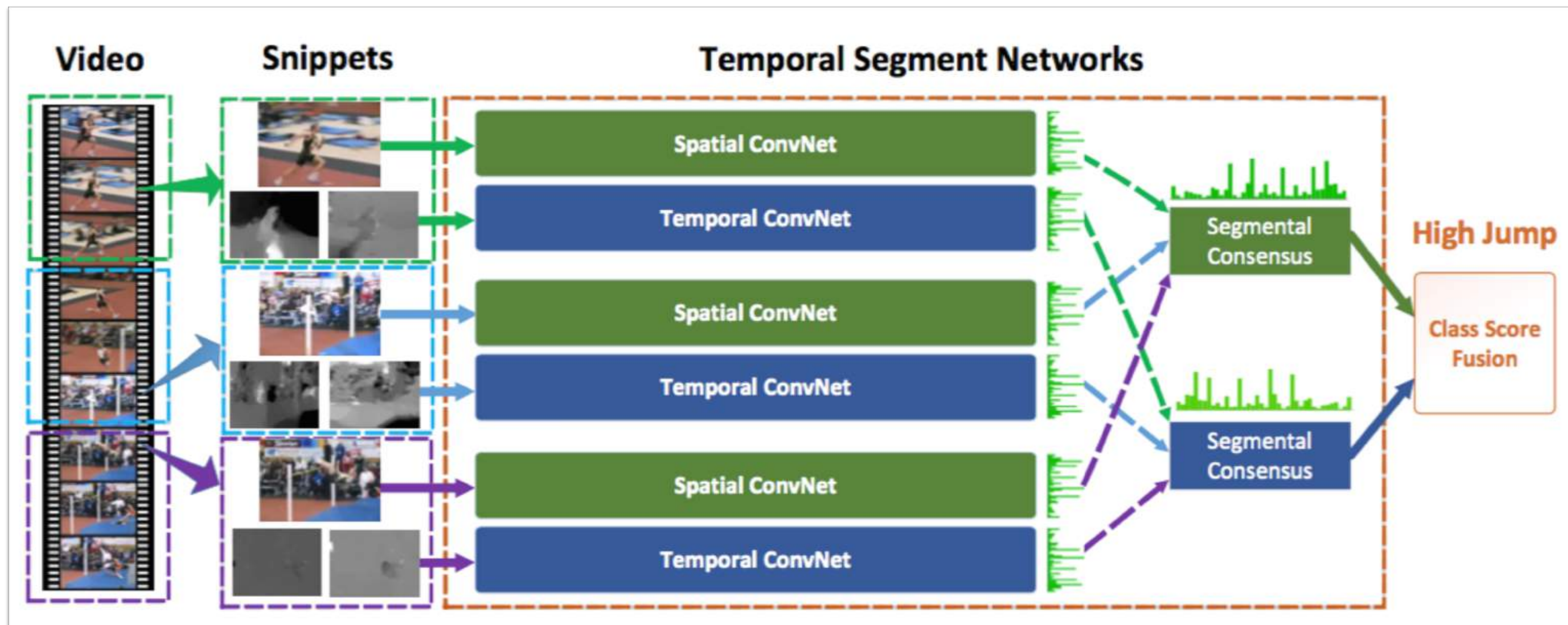


三段式方式



Loss Func

$$\mathcal{L}(y, \mathbf{G}) = - \sum_{i=1}^C y_i \left(G_i - \log \sum_{j=1}^C \exp G_j \right)$$

Loss 的梯度计算

$$\frac{\partial \mathcal{L}(y, \mathbf{G})}{\partial \mathbf{W}} = \frac{\partial \mathcal{L}}{\partial \mathbf{G}} \sum_{k=1}^K \frac{\partial \mathcal{G}}{\partial \mathcal{F}(T_k)} \frac{\partial \mathcal{F}(T_k)}{\partial \mathbf{W}}$$

人物信息结构化

模型



人

- ✓ 人脸评价
- ✓ 人脸外饰
- ✓ 多角度特征
- ✓ 人脸跟踪

- ✓ 上下文
- ✓ 关系图谱

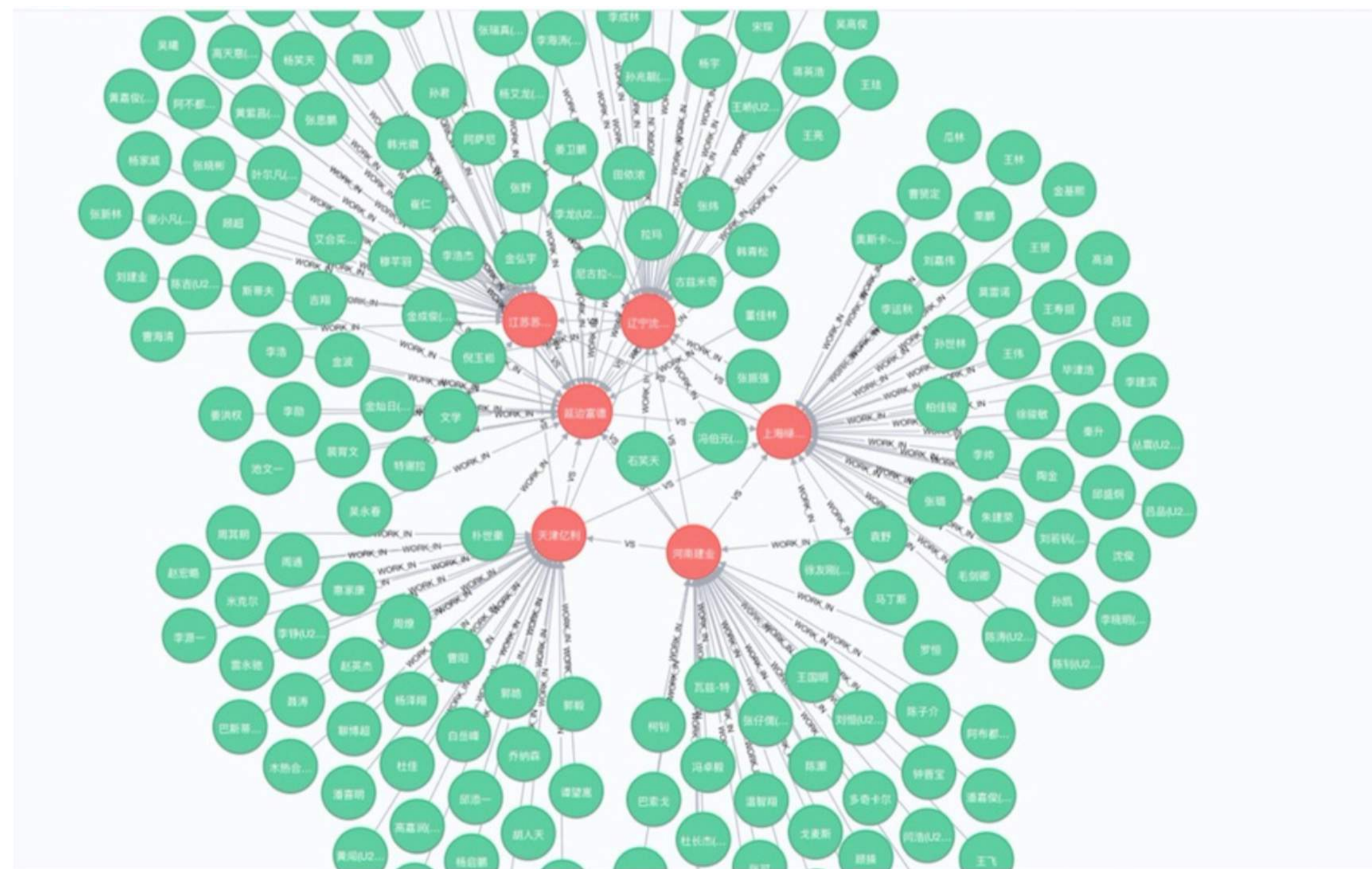
上下文&知识图谱



人脸识别

球衣识别

侧脸识别



实践



人脸结构化

The screenshot displays a web interface for video analysis. On the left is a dark sidebar with the logo '七牛视频结构化' and a '视频列表' link. The main content area has a breadcrumb '首页 / 视频详情' and a title '视频详情'. Below the title is a search bar with the placeholder '请输入你要搜索的人物' and a '视频列表' button. The video player shows a scene with two women, and a yellow label '潘梓童' is overlaid. To the right of the video is a '详情' section with a '普通人' filter. Below the filter is a vertical list of eight small face icons, each with a corresponding horizontal timeline bar. Green blocks on these bars indicate the detected presence of that specific person in the video.

模型

- ✓ 检测
- ✓ 区间合并



物体

- ✓ 场景上下文
- ✓ 知识图谱

物体结构化

视频列表 / 读懂视频



场景识别

物体识别

00:00-00:15

男人

00:16-00:18 01:13-01:14 01:26-01:29 01:35-01:37

台球桌

00:24-00:27 00:34-00:46 00:50-01:12 02:03-02:10
02:30-02:55

服饰

00:47-00:51 01:34-01:37

人脸, 面部

00:00-00:18 00:47-00:49 01:13-01:14 01:26-01:29
01:35-01:37 02:24-02:24

套装

00:00-00:15

帧检测密集

0.1s

0.5s

1s

2s

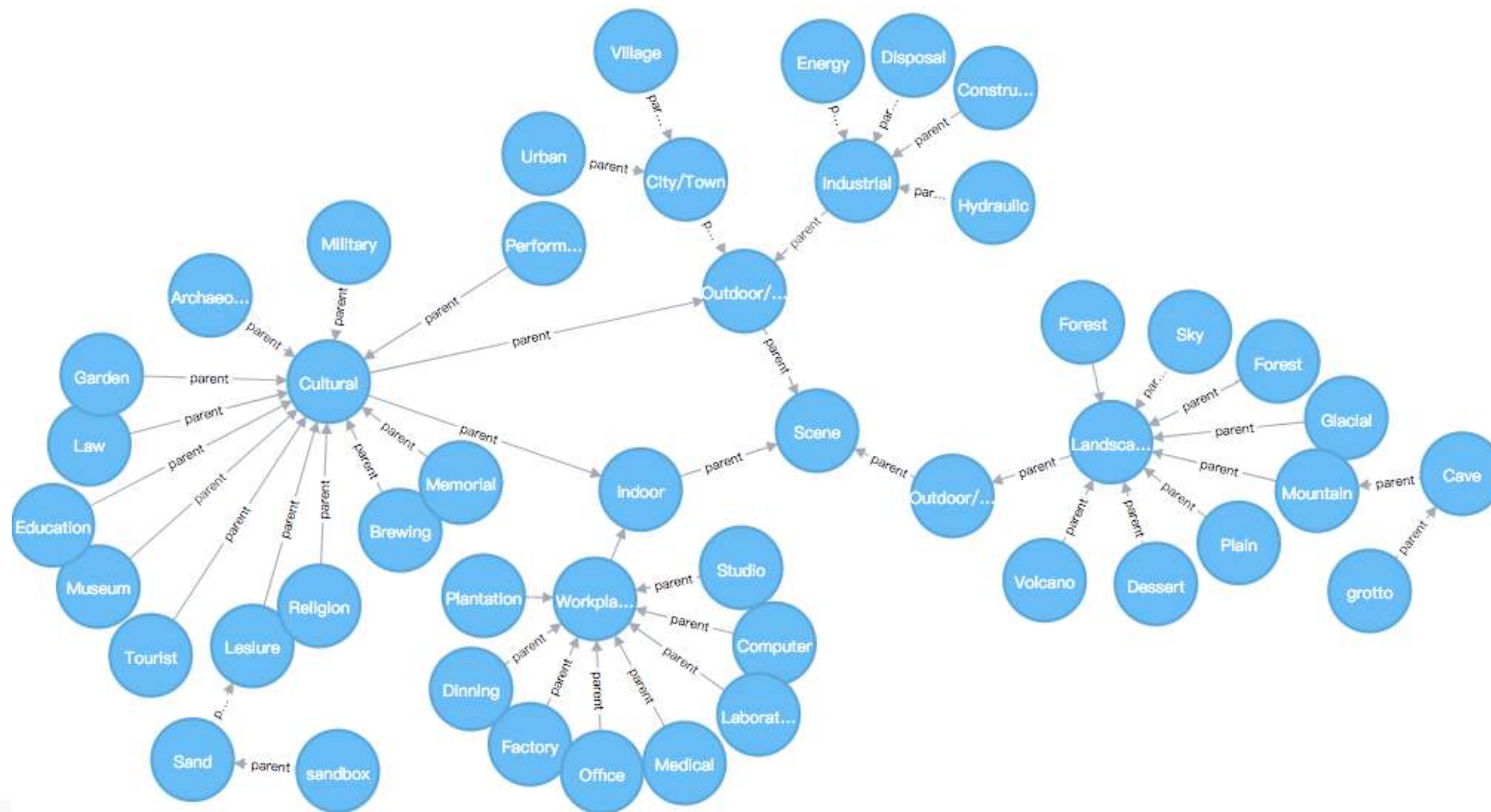


场景识别



标签和置信度

动物-海星	98%
室外-海滩	88%



知识图谱

实践

做菜 or 行凶



场景结构化

视频列表 / 读懂视频



场景识别

物体识别

电视演播厅

00:00-00:18 00:47-00:49 01:35-01:37

娱乐室

00:19-00:30 00:34-00:46 00:50-01:12 01:15-01:25
01:30-01:34 01:38-01:45 01:48-02:00 02:03-02:10
02:20-02:22 02:30-02:55

游戏厅

02:17-02:19

声音识别

声音转文字

声纹特征

视频结构化视图



视频的时序关联性



视频的阶段性





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