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### BanditSum: Extractive Summarization as a Contextual Bandit

Dong, Y.; Shen, Y.; Crawford, E.; van Hoof, H.; Cheung, J.C.K.

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## BANDITSUM: Extractive Summarization as a Contextual Bandit Supplemental Materials

### Samples

<b>Source Document</b>
(CNN)A top al Qaeda in the Arabian Peninsula leader – who a few years ago was in a U.S. detention facility – was among five killed in an airstrike in Yemen, the terror group said, showing the organization is vulnerable even as Yemen appears close to civil war. Ibrahim al-Rubaish died Monday night in what AQAP’s media wing, Al-Malahem Media, called a “crusader airstrike.” The Al-Malahem Media obituary characterized al-Rubaish as a religious scholar and combat commander. A Yemeni Defense Ministry official and two Yemeni national security officials not authorized to speak on record confirmed that al-Rubaish had been killed, but could not specify how he died. Al-Rubaish was once held by the U.S. government at its detention facility in Guantanamo Bay, Cuba. In fact, he was among a number of detainees who sued the administration of then-President George W. Bush to challenge the legality of their confinement in Gitmo. He was eventually released as part of Saudi Arabia’s program for rehabilitating jihadist terrorists, a program that U.S. Sen. Jeff Sessions, R-Alabama, characterized as “a failure.” In December 2009, Sessions listed al-Rubaish among those on the virtual “Who’s Who” of al Qaeda terrorists on the Arabian peninsula ... who have either graduated or escaped from the program en route to terrorist acts.” The United States has been active in Yemen, working closely with governments there to go after AQAP leaders like al-Rubaish. While it was not immediately clear how he died, drone strikes have killed many other members of the terrorist group. Yemen, however, has been in disarray since Houthi rebels began asserting themselves last year. The Shiite minority group even managed to take over the capital of Sanaa and, in January, force out Yemeni President Abdu Rabu Mansour Hadi – who had been a close U.S. ally in its anti-terror fight. Hadi still claims he is Yemen’s legitimate leader, and he is working with a Saudi-led military coalition to target Houthis and supporters of former President Ali Abdullah Saleh. Meanwhile, Yemen has been awash in violence and chaos – which in some ways has been good for groups such as AQAP. A prison break earlier this month freed 270 prisoners, including some senior AQAP figures, according to a senior Defense Ministry official, and the United States pulled the last of its special operations forces out of Yemen last month, which some say makes things easier for AQAP.
<b>Reference</b>
AQAP says a “crusader airstrike” killed Ibrahim al-Rubaish. Al-Rubaish was once detained by the United States in Guantanamo.
<b>Refresh</b>
(CNN) A top al Qaeda in the Arabian Peninsula leader – who a few years ago was in a U.S. detention facility – was among five killed in an airstrike in Yemen, the terror group said, showing the organization is vulnerable even as Yemen appears close to civil war. Ibrahim al-Rubaish died Monday night in what AQAP’s media wing, Al-Malahem Media, called a “crusader airstrike.” Al-Rubaish was once held by the U.S. government at its detention facility in Guantanamo Bay, Cuba.
<b>BANDITSUM</b>
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Table 1: Example from the dataset showing summaries generated by BANDITSUM and Refresh. Refresh selected the article’s first sentence (blue) which contains the redundant information “Ibrahim al-Rubaish was in a U.S. detention facility”. In contrast, BanditSum selected the yellow sentence containing extra source information.

<b>Source Document</b>
(CNN)You probably never knew her name, but you were familiar with her work. Betty Whitehead Willis, the designer of the iconic "Welcome to Fabulous Las Vegas" sign, died over the weekend. She was 91. Willis played a major role in creating some of the most memorable neon work in the city. The Neon Museum also credits her with designing the signs for Moulin Rouge Hotel and Blue Angel Motel. Willis visited the Neon Museum in 2013 to celebrate her 90th birthday. Born about 50 miles outside of Las Vegas in Overton, she attended art school in Pasadena, California, before returning home. She retired at age 77. Willis never trademarked her most-famous work, calling it "my gift to the city." Today it can be found on everything from T-shirts to refrigerator magnets.
<b>Reference</b>
Willis never trademarked her most-famous work, calling it "my gift to the city". She created some of the city's most famous neon work.
<b>Refresh</b>
Betty Whitehead Willis, the designer of the iconic "Welcome to Fabulous Las Vegas" sign, died over the weekend. Willis played a major role in creating some of the most memorable neon work in the city. Willis visited the Neon Museum in 2013 to celebrate her 90th birthday.
<b>BANDITSUM</b>
Betty Whitehead Willis , the designer of the iconic "Welcome to Fabulous Las Vegas" sign , died over the weekend. She was 91. The Neon Museum also credits her with designing the signs for Moulin Rouge Hotel and Blue Angel Motel.

Table 2: Example from the dataset showing summaries generated by BANDITSUM and Refresh. BANDITSUM tends to select more precise information.