

# Intelligent Systems: Reasoning and Recognition

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ENSIMAG 2 and MoSIG M1

Winter Semester 2017

Exercise 6

17 March 2017

## Data Analysis with EM

You have been hired as a political analyst for a political candidate. Your job is to identify the sectors of the population for which you can design targeted publicity. For this you prepare a questionnaire for a poll. Each question has a small number of possible responses. The questions are as follows:

- 1) What is your age? A) 18-29, B) 30-39, C) 40-49, D) 50-59, E) 60 or older
- 2) What is your sex? A) Male, B) Female.
- 3) What is level of education? A) High-school B) University Bachelor, C) Masters Degree D) Doctorate, E) Other.
- 4) What is your annual Salary? A) < 15 000 B) 15 001 to 30 000 C) 30 001 to 60 000 D) 60 001 to 90 000, E) More than 90 000.
- 5) How will you vote in the election? A) Candidate A, B) Candidate B, C) I have not decided, D) I do not plan to vote.

Explain how to use the EM algorithm to discover categories of voters who are likely to vote for your candidate given their responses to questions 1, 2, 3, and 4. How can this information be used for targeted publicity for your candidate?