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http://www.lounjee.com/

2 Funded Research M2 Internships (2nd year of MSc) for 2018:

Machine Learning for Recommendations and Profile Modeling in Social Networks

Context: Professional networking is an activity made famous by services like LinkedIn and, as more than 70% of jobs are found through networking (US labor statistics), every professional is looking at improving at it. Beyond searching for a new job, expanding and maintaining a healthy and supportive network is key for business success. Unfortunately, very few people are effective at professional networking, creating an opportunity for better products/services to them have a better network and achieve the outcomes they want.
Existing services like LinkedIn suggest people to connect but primarily people who are similar to you (i.e. based on shared connections/industry like LinkedIn or based on interests like Shapr). Instead, Lounjee uses the following factors to match professional profiles: What people are looking for, What they can offer, Industry, and Location. Lounjee implements these factors into an early matching logic, which has been tested with real users. The results from matching on these basic dimensions were encouraging (50% users returning each week, 80% users returning each month, over 50% of users favoring a profile i.e. saving it for later). This validated the hypothesis that matching for professional network is not about similarity of profiles but rather about matching people who have a need (are looking for something) with people who can fill that need (can offer that thing).

Internship Position 1: We will expand and improve the matching algorithms used by Lounjee, as follows. First, expand data model used for matching to include attributes like Skills, Interests, College Education, Common alumni, Years of professional experience, Group membership, Previous companies, Home town, etc. Determine which elements we can add and in which order to the matching algorithm, and measure the impact on matching quality that adding each attribute brings. Second, adopt a score-based matching model. The current matching algorithm matches people based on a hierarchical tiered system (rule-based recommendation), where we suggest matched profiles from Tier 1, then Tier 2 etc.). We will: (i) Move from semi-quantitative (rule-based) matching model to a quantitative (score-based) matching model that uses machine-learning methods; (ii) Pre-calculate (asynchronous) scores/matches to handle complexity and increase performance; (iii) Apply machine-learning to existing data to determine which factors explain existing matches the best and what we should include in the next version of the matching algorithm.

Internship Position 2: We will develop a mechanism that attributes a reputation score (more accurately a set of reputation scores) to each user. The motivation is to (i) preempt undesired user behavior that violates community guidelines by understanding which users we *trust*, (ii) reward users who are frequently connecting and helping other users, i.e., users with good *karma*, and (iii) understand the desirability of each user to another (for example, the CEO of Google should not be matched to undergraduate students in economics, but rather to other users of a similar *influence*). We need a reputation system that will give each user (1) A *trust score* that represents how much trust they have in the system; (2) A *quality score* that represents how grateful the other users are to interact with this user; (3) A *karma score* that represents how often this user is proactive in helping and connecting others. This karma is the real-life success factor that determines which people will be “super connectors”. We will simulate it by having a set of desired behaviors that are also perceived by our users as steps towards realizing goals that are aspirational, desirable and achievable; and (4) An *influence score* that represents how influential a user is.

Internship: Accepting any of these two projects will make you part of an enthusiastic team working on challenging problems! You will have the opportunity to develop new machine learning solutions, test those on real data with real users, and have impact on a real-world product.
Prerequisites: experience with machine learning algorithms (including deep learning), excellent programming skills; knowledge of mongoDB and node.js will be a plus.
The internships will last 3-6 months, and are fully funded. We expect to publish a paper based on the obtained results.