

Effective Method of Job Search and Matching Model using the Cooperative Approach

Khin Shin Thant
*University of Computer Studies,
 Hinthada*
shinthantkhin10@gmail.com

Thet Thet Aung
*University of Computer Studies,
 Hinthada*
thetthetthet86.htd@gmail.com

Hlaing Htake Khaung Tin
*University of Computer Studies,
 Hinthada*
hlainghtakekhangtin@gmail.com

Abstract

The current research illustrates the pattern of job encounters with unemployed workers. Today everyone has to work. As a result, they look for a job and life balance that matches their abilities. Every graduate has many opportunities in the workplace. But they can find one job from another. That's why we need a job agency to find employees. This paper proposes a work agency system. The purpose of this paper is to identify the work of employees' qualifications. In this system, there are registered agents, including job seekers and employers. User interface Job Search Agent Contains CV creator and employer. Job seekers can register our system using an interface agent and use a register agent. The job seeker can use the job search agent to find a job. They can create the CV first and apply for the job. Employers can use our system to find qualified employees and register agents.

Keywords: *Job Search, Job Matching, Multi-Agent, Agency, Cooperative Approach.*

1. Introduction

When the job seeker is looking for the perfect job or if the employer is trying to recruit reliable and trusted employees, they may choose to take on a very caring job agency, or a job offer. Carefully consider the needs of the employer and the employees need to choose the right front. The whole thing created on private skills and qualities. The next thing, the employee poverty to go along and encounter an employer who needs someone with a specific type of commercial or technical skill, or that employee's skill base does not match their expectations. So, to ensure everything drives easily with job selection process, they need job agency.

Reducing TFP growth; Due to rising real interest rates and increased tax rates, unemployment often increases and unemployment rates rise or tax rates rise. "There is work in the labor market. "

There are various types of job information such as qualification, certificate and work experience. This information should be starting point. This system is helping trainee applicants in an enormous variety of arenas, containing accountancy, Information technology, marketing, teaching, HR and admin, etc. All of job posts are announce by an employer in our site and all of job

seeker who wants to search the jobs using our system to search jobs.

Searching for a search pattern is like this. One type of broker, "Workers", is looking for a job. Or other agents, such as "companies", are empty or empty. In addition, to work with the worker in the case.

2. Literature Review

People in the 21st century say that math is a very difficult subject. They are today the least educated people in mathematics, science and technology. Trade and land measurements are used. [1]

Multi-agent systems are systems involving of numerous independent entities, called agents that relate with each other to either further their own interests (competition) or in search of a cooperative objective (cooperation). [2] Although typical Artificial Intelligence has determined on modeling single agents, the field of multi-agent structures applications on the interaction between different agents. [3] This course will simplify some of the core contributions to the theory of multi-agent systems made by different disciplines, including logic, economics and computer science. [4]

Search matching templates do nothing for the first question. One has to assume the downside to the story. But if you allow for wage adjustments and other reforms, the model is a long way off. In short, the model is a great tool to have in the toolbox of an economist, supplied with sophisticated and focused data, first and foremost. [5]

3. Background Theory

Matching theory is particularly influential in the labor economy. There it was used to describe new human relationships, such as the emergence of new jobs and marriage. Search theory studies the search engine's individual macroeconomic theory, looking at one or more of the search engine's macro-economic results.

Multi-agent system (MAS) is a structure composed of several cooperating intelligent agents. Multi-agent schemes can remain used to explain difficulties that are hard or incredible for a specific agent or a uniform system to explain. Intelligence may contain some methodic, practical, technical or algorithmic search, find and processing approach. Subjects where multi-agent systems investigation may supply an appropriate method contain online trading, disaster response, and modeling

public structures. The agents in a multi-agent system have numerous important features:

- **Autonomy:** the agents are at least incompletely self-governing.
- **Local views:** no agent has a complete overall view of the structure, or the system is too difficult for an agent to create real use of such information.
- **Decentralization:** there is no selected monitoring agent (or the system is efficiently compact to a uniform system).

3.1. Intelligent Agent

Intellectual aptitude is closely linked to agents in the field of artificial intelligence, and models of cognitive agents, science, ethics, practical reasoning, and artificial agents are also software agents (proprietary software). This is the responsibility of the users. In computer science, the term "intelligence agent" can be used to describe some intelligent software. This is not a typical agent, according to the definition of Russell and Norvig. For example, the self-governance programs used for operator support or information search (sometimes called "bot") are called "intelligent agents".

Whenever the agent using the term Percept, it refer to the opinion of agents. An agent is viewed as perceiving its surroundings through sensors and acting on the environment through actuators.

- Simple reflex agent
- Model based reflex agent
- Goal-based agent
- Utility-based agents
- Learning agents

An agent-based model is a class of computational for simulating the activities and relations of autonomous agents with a view to evaluating their effects on the system as a whole. It associations features of game theory, composite system, appearance, computational sociology, multi-agent systems and evolutionary program design.

4. Proposed System Design

Interface agent used for the system and user can communicate easily. Register agent is used for the applicant and employer registration. Applicant agent is used for the applicant who search job easily. Job search agent is used for the applicant job search that available from the company. CV creator agent is used for the applicant who creates CV. Company information agent is used to upload company information and announce post needed from company. The following figure 1 and figure 2 are detail steps with pseudo code of job seeker and employer.

```

Pseudo code for job seeker
begin
  input username, password
  display " Job post from employer want "
  if apply job == 'yes' then
    store detail information of employee to DB
  else
    log out
  end if
end
    
```

Figure 1. Detail steps with pseudo code of Job seeker

```

Pseudo code for employer
begin
  input username, password
  display "currently job applier"
  if choose applicant == 'yes'
    display " detail information of applicant that they like and store DB"
  else
    display" The post that they want"
  end if
end
    
```

Figure 2. Detail steps with pseudo code of Employer



Figure 3. System design of proposed system

In this system design of information retrieval procedure, the first step is Job Seekers enter from GUI using register agent. The second is the register agent resides on the system and registers the user in this system. Third step is Database Agent (DA) searches the job post that employer want and show the job seeker. And then the DA will allow creating profile and resuming, and the

Employer enters from GUI using register agent. The next step is Data Base Agent searches the applicant and shows the applicant list to employer. Finally it can announce job post in this system for employee.

5. Agents using in Proposed System

Multi-agent system holds a number of agents which relate with one another through communication. The agents are capable to act in a situation of different agents have different scopes of inspiration and different portions of the environment. Agents will also typically be linked by other relationship. This system includes five agents.

- User interface agent
- Register agent
- Applicant agent
- CV creator
- Job search agent
- Company info agent

5.1. User Interface Agent

User Interface Agent shows friendly interface for users to view and access to the site easily.

```
BEGIN
  SHOW Home Page
  ACCEPT Users Requests
  IF user request = Applicant THEN
    CALL Applicant Info Agent
  ENDIF
  IF user request = Employer THEN
    CALL Company Info agent
  ENDIF
  IF user request = User Register THEN
    CALL Register agent
  ENDIF
  ELSEIF
    SHOW Error message
  END
```

5.2. Registration Agent

Registration Agent allows users to make user account registration for sign in to the system for uploading company profile, job vacancy announcement or job search.

```
BEGIN
  User Interface Agent
  REQUEST login information
  CHECK submit data
  IF check status = TRUE THEN
    STORE login information
  ELSE User Interface Agent
    SHOW error message
  ENDIF
  END
```

5.3. Applicant Information Agent

The task of applicant information agent is uploading the resume of applicant, create CV for applicant and search the appropriate job for applicant.

```
BEGIN
  IF job search =TRUE THEN
    SHOW Currently Job post want from company
  ELSEIF
    CV creator =TRUE THEN
    CALL CV creator agent and
    CREATE CV and Store in Database
  ELSE
    SHOW Error message
  ENDIF
  END
```

5.4. CV Creator Agent

CV Creator Agent creates CV for users (job seeker). If Job search Agent found suitable job for user, CV Creator Agent creates CV and sends directly that CV to the requested users (employers) via Job Search Agent.

```
BEGIN
  Applicant Information Agent
  INPUT CV Information
  MAKE CV
  SHOW CV in Format
  IF Applicant Apply=TRUE THEN
    SEND CV to employee
  ELSE
    STORE CV
  ENDIF
  END
```

5.5. Job Search Agent

Job Search Agent finds suitable jobs for users (job seeker) whose abilities and background match Job Vacancies'.

```
BEGIN
  Call Available Jobs Result
  // (Job Type Field)
  Applicant Information Agent
  IF Result Count = 0 THEN
    Job request not found
  ELSE
    Show All Available Jobs
  ENDIF
  IF user request want to apply THEN
    Call CV creator agent
    Make CV
  ELSE
    Log out from system
  END IF
  END
```

5.6. Company Information Agent

The task of company information entry agent is to upload the companies' contact information and job vacancy list .

```

BEGIN
  Registration Agent
  IF check status=TRUE THEN
    SHOW the applicant list for announce
  and can announce new post
  ELSE
    SHOW error message
  ENDIF
END
    
```

6. Experimental Result and Discussion

The participants in this proposed system involve the role of job seekers and employers. The system is composed two major processes.

1. Job Seekers fill the necessary data to job search agent to find suitable jobs and log in to the system to get feedback.
2. Employers make the registration form to get own log in, feedback information and fill the necessary data to uploading company profile and job vacancy.

This proposed system has to find the most suitable results for the users by itself even the user input is not exact keywords of available data in the database. Only the proposed system which uses intelligence agent can perform in this way. The following figure 4 is represent the page, when applicant want to enter our system using this page .This page have user name and password textbox for applicant. Applicant can enter our site using their name and password.



Figure 4. Applicant Home Page

And the figure 5 is representing the page, when employers want to search the employee for their company, so they should announce the new job post for their company. This page is the broadcast the new job post.



Figure 5. Company Posting New Job Page

Multi-agent system attraction from a prosperity of areas such as distributed systems, distributed artificial intelligence, software engineering, computer maintained supportive work, knowledge demonstration . This system is suitable for the job seekers and employers. Job seekers don't waste time for jobs search and employers don't waste time for search employees who are suitable for the posts that they want. A lot of job posts can see in our system and job seekers can choose the job posts that they want to apply. Employers can see a lot of applicants for their posts and can choose the employees that they like. So, this system is very convenient for the job seekers and employers.

Multi-agent systems can be useful for their illustration of intelligence. Multi-agent system is needed to handle their interactions. Agents were classified based on the properties of they possessed. Multi-agent systems are disturbed with in what manner a set of agents can effort together to solve difficulties that are beyond their distinct abilities.

7. Conclusion

In the proposed system, multi-agents technique is used to create intelligence web site. The intelligence of our system is suitable for employer and job seeker. When job seeker wants to search the job, they can search the job easily using this system. This system can show the currently job post from employer want and job seeker can know which a job is currently wanted or not. From the side of employers, employers can know the job seeker information and can choose the employee that they like. The main advantages of using the multi-agent system solving the problem is it can ease the search computer related job and course (over the network with communication with other agents in different web services). Multi-agent system can produce the necessary information accurately and timely. Therefore, the user will get interactive answers from the site and according to the outcome results; users can make a right decision for their future. Multi- Agent Systems (MAS) is slowly becoming the new standard for the development of distributed computing systems. Suitable platform for integrated decision support in business information systems and knowledge management. An agent is a self-governing computer system that is located in a certain

environment and in accordance with the purpose of computer design.

References

- [1] S. Resic, J.Santic and E.Cajic, "Cooperative Approach to Learning in Mathematics", S.RESIC, COOPERATIVE APPROACH TO LEARNING...HUMAN, Volume 6, Issue 1, 2006.
- [2] A. Arasu, J. Cho, H.Garcia-Molina, A.Paepcke, S. Raghavan, "Searching the Web," *ACM Transactions on Internet Technology*, August 2001 .
- [3] A. Lúny, *Building Complex Systems with Agent-Space Architecture*. Computing and Informatics, Vol. 23 (2004), pp. 1001-1036.
- [4] A. Lúny, "From inter-module links to indirect communication among agents", ZNALOSTI '07, VŠB Ostrava, 2007.
- [5] G.William Flake, S. Lawrence, C. Lee Giles, Frans M. Coetzee, "Self Organization and Identification of Web Communities," *35(3)*, 66-71, 2000.
- [6] J. Kelemen, "Agent Paradigm Computing and Informatics", Vol.22. (2003), pp. 513-519.
- [7] <https://equitablegrowth.org/value-search-matching-models-labor-market>