| S. No. | TITLE | AUTHORS | KEY POINTS | Year |
| --- | --- | --- | --- | --- |
| 1 | A Neural Network Based Cognitive Engine for  IEEE 802.11 WLAN Access Point Selection | Biljana Bojovic, Nicola Baldo and Paolo Dini | * An accurate estimation of the throughput is achieved by learning from past environmental conditions and throughput measurements. * Feed Forward Neural Network (FFNN) is used for implementation which is used to model non-linear models. * Parameters used:   + the signal to noise ratio γ ∈ R   + the probability of failure pf ∈ [0, 1] ⊂ R   + the business ratio br ∈ [0, 1] ⊂ R   + the number of detected stations ns ∈ Z | April 2012 |
| 2 | Available Bandwidth-Based Association in IEEE 802.11  Wireless LANs | Heeyoung Lee1  , Seongkwan Kim1  , Okhwan Lee1  , Sunghyun Choi1  , Sung-Ju Lee2 | * RSSI is most widely used but it has poor performance. * collecting information such as the number of associated stations or its transmission rate, stations can select an AP with better link quality that is measured by different methods. Such an approach should be accompanied with a protocol modification in the AP side | October 2008 |
| 3 | **A Distributed Access Point Selection Algorithm Based on No-Regret Learning for Wireless Access Networks** | Lin Chen | * Formulate access point selection problem as a non-cooperative game where each user tries to maximize its utility function, defined as the throughput reward minus the fee charged by the access point. * Linear pricing model the fee charged by access point to its clients is linear function of connection time. | 16-19 May 2010 |
| 4 | Optimized Access Point Selection with Mobility Prediction Using Hidden Markov Model for Wireless Network | Khong-Lim Yap and Yung-Wey Chong | * Hidden Markov Model is used as prediction tool to forecast the WLAN AP that can provide optimal Quality of Service (QoS) by observing the location histories of the mobile device * The number of connections to high signal level AP increased and number of connections to low signal level AP decreased in comparison with conventional approaches. * AP selection is also implemented so that AP controller can manage the mobility prediction in order to further encourage mobile users to connect to a better performing WiFi AP | 27 July 2017 |
| 5 | An Optimal Distributed Algorithm for Best AP Selection and Load Balancing in WiFi | Uferah Shafi, Muhammad Zeeshan, Naveed Iqbal, Nadia Kalsoom and Rafia Mumtaz | * Mobile Users select an AP in a distributed manner. * Selection criteria depending on different parameters name: available bandwidth, delay, throughput, and application running on mobile devices * The proposed algorithm considers **RSSI, data rate and load on AP**. * If the beta factor is greater than 50, then devices connected to that AP are getting a very low data rate. | 29 November 2018 |
| 6. | Artificial Neural Network Based Vertical Handoff  Algorithm for Reducing Handoff Latency | Ali Çalhan Celal Çeken | 1. Parameters related to user preferences,such as; **data rate, service cost, network latency, speed of mobile, battery level, interference**   **ratio** and etc. must be considered in vertical handoff process along with traditional RSSI   1. information. 2. the neural network techniques widely used are the gradient descent 3. backpropagation, the gradient descent backpropagation with the momentum, the conjugate 4. gradient backpropagation, the quasi-newton method and the Levenberg–Marquardt method. | [28 November 2012](https://link.springer.com/article/10.1007/s11277-012-0944-4#article-info) |

1. **Please check how dBm values for received Wireless Signal power are represented.**

Excellent >-50 dBm

Good -50 to -60 dBm

Fair -60 to -70 dBm

Weak < -70 dBm

1. **CHA LOWER CENTER UPPER**

NUM FREQ FREQ FREQ

MHZ MHZ MHZ

1 2401 2412 2423

2 2406 2417 2428

3 2411 2422 2433

4 2416 2427 2438

5 2421 2432 2443

6 2426 2437 2448

7 2431 2442 2453

8 2436 2447 2458

9 2441 2452 2463

10 2446 2457 2468

11 2451 2462 2473

12 2456 2467 2478

13 2461 2472 2483

14 2473 2484 2495

Often WiFi routers are set to channel 6 as the default, and therefore the set of channels 1, 6 and 11 is possibly the most widely used.

1. **Can you really compare network speed with network bandwidth?**

Though interrelated, they are two very different things. While network speed measures the transfer rate of data from a source system to a destination system, network bandwidth is the amount of data that can be transferred per second (“the size of the pipe”). Combine the two, and you have what is known as network throughput.

1. **Latency** is the delay packets experience while moving through a network and typically is the culprit behind poor application response time and frustrated users.

1. **int type = getConnectionType(getApplicationContext());**

It returns an int, you can change it to enum in your code:

0: No Internet available (maybe on airplane mode, or in the process of joining an wi-fi).

1: Cellular (mobile data, 3G/4G/LTE whatever). 2: Wi-fi .3: VPN

<https://developer.android.com/training/basics/network-ops/reading-network-state>

**Scaling is required when we are looking for gradient descent such as kmeans clustering, linear regression, logistic regression.**

**Standardization or normalization**

**P test is used to remove the extreme outliers**

**GOOGLE SCORING ALGO: https://docs.google.com/document/d/1Kp8X2FkaOqzG8KTbI\_mm-IYUDtgyDYcNkxB1nSswyTo/edit?usp=sharing**