**INTELLIGENCE INTRUSION DETECTION USING GLOWWORM SWARM OPTIMIZATION WITH MULTINOMIAL NAÏVE BAYESIAN TECHNIQUE IN MANET**

**6.1 SAMPLE CODING**

# Relay Selection

set val(chan) Channel/WirelessChannel ;# channel type

set val(prop) Propagation/TwoRayGround ;# radio-propagation model

set val(netif) Phy/WirelessPhy ;# network interface type

set val(mac) Mac/802\_11 ;# MAC type

set val(ifq) Queue/DropTail/PriQueue ;# interface queue type

set val(ll) LL ;# link layer type

set val(ant) Antenna/OmniAntenna ;# antenna model

set val(ifqlen) 50 ;# max packet in ifq

set val(nn) 21 ;# number of mobile nodes

set val(rp) DSDV ;# routing protocol

set val(x) 1030 ;# X dimension of topography

set val(y) 603 ;# Y dimension of topography

set val(stop) 20.0 ;# time of simulation end

#Create a ns simulator

set ns [new Simulator]

#Setup topography object

set topo [new Topography]

$topo load\_flatgrid $val(x) $val(y)

create-god $val(nn)

#Open the NS trace file

set tracefile [open relay.tr w]

$ns trace-all $tracefile

#Open the NAM trace file

set namfile [open relay.nam w]

$ns namtrace-all $namfile

$ns node-config -adhocRouting $val(rp) \

-llType $val(ll) \

-macType $val(mac) \

-ifqType $val(ifq) \

-ifqLen $val(ifqlen) \

-antType $val(ant) \

-propType $val(prop) \

-phyType $val(netif) \

-channel $chan \

-topoInstance $topo \

-agentTrace ON \

-routerTrace ON \

-macTrace ON \

-movementTrace ON

#Create 22 nodes

set n0 [$ns node]

$n0 set X\_ 354

$n0 set Y\_ 347

$n0 set Z\_ 0.0

$ns initial\_node\_pos $n0 20

set n1 [$ns node]

$n1 set X\_ 317

$n1 set Y\_ 432

$n1 set Z\_ 0.0

$ns initial\_node\_pos $n1 20

set n2 [$ns node]

$n2 set X\_ 243

$n2 set Y\_ 358

$n2 set Z\_ 0.0

$ns initial\_node\_pos $n2 20

set n3 [$ns node]

$n3 set X\_ 278

$n3 set Y\_ 265

$n3 set Z\_ 0.0

$ns initial\_node\_pos $n3 20

set n4 [$ns node]

$n4 set X\_ 406

$n4 set Y\_ 245

$n4 set Z\_ 0.0

$ns initial\_node\_pos $n4 20

set n5 [$ns node]

$n5 set X\_ 428

$n5 set Y\_ 440

$n5 set Z\_ 0.0

$ns initial\_node\_pos $n5 20

set n6 [$ns node]

$n6 set X\_ 463

$n6 set Y\_ 344

$n6 set Z\_ 0.0

$ns initial\_node\_pos $n6 20

set n7 [$ns node]

$n7 set X\_ 515

$n7 set Y\_ 250

$n7 set Z\_ 0.0

$ns initial\_node\_pos $n7 20

set n8 [$ns node]

$n8 set X\_ 523

$n8 set Y\_ 414

$n8 set Z\_ 0.0

$ns initial\_node\_pos $n8 20

set n9 [$ns node]

$n9 set X\_ 565

$n9 set Y\_ 325

$n9 set Z\_ 0.0

$ns initial\_node\_pos $n9 20

set n10 [$ns node]

$n10 set X\_ 604

$n10 set Y\_ 244

$n10 set Z\_ 0.0

$ns initial\_node\_pos $n10 20

set n11 [$ns node]

$n11 set X\_ 662

$n11 set Y\_ 328

$n11 set Z\_ 0.0

$ns initial\_node\_pos $n11 20

set n12 [$ns node]

$n12 set X\_ 649

$n12 set Y\_ 421

$n12 set Z\_ 0.0

$ns initial\_node\_pos $n12 20

set n13 [$ns node]

$n13 set X\_ 753

$n13 set Y\_ 357

$n13 set Z\_ 0.0

$ns initial\_node\_pos $n13 20

set n14 [$ns node]

$n14 set X\_ 754

$n14 set Y\_ 434

$n14 set Z\_ 0.0

$ns initial\_node\_pos $n14 20

set n15 [$ns node]

$n15 set X\_ 749

$n15 set Y\_ 503

$n15 set Z\_ 0.0

$ns initial\_node\_pos $n15 20

set n16 [$ns node]

$n16 set X\_ 848

$n16 set Y\_ 501

$n16 set Z\_ 0.0

$ns initial\_node\_pos $n16 20

set n17 [$ns node]

$n17 set X\_ 857

$n17 set Y\_ 436

$n17 set Z\_ 0.0

$ns initial\_node\_pos $n17 20

set n18 [$ns node]

$n18 set X\_ 930

$n18 set Y\_ 443

$n18 set Z\_ 0.0

$ns initial\_node\_pos $n18 20

set n19 [$ns node]

$n19 set X\_ 889

$n19 set Y\_ 348

$n19 set Z\_ 0.0

$ns initial\_node\_pos $n19 20

set n20 [$ns node]

$n20 set X\_ 826

$n20 set Y\_ 296

$n20 set Z\_ 0.0

$ns initial\_node\_pos $n20 20

$ns at 7.9 "$n7 add-mark n7 blue square"

$ns at 7.9 "$n8 add-mark n8 blue square"

$ns at 4.0 "$n9 add-mark n9 pink square"

$ns at 4.0 "$n1 add-mark n1 pink square"

$ns at 5.5 "$n0 add-mark n0 red square"

$ns at 7.9 "$n10 add-mark n10 blue square"

$ns at 7.9 "$n11 add-mark n11 red circle"

$ns at 7.9 "$n12 add-mark n12 red circle"

$ns at 3.0 "$n1 setdest 364.0 395.0 3.0"

$ns at 3.0 "$n2 setdest 121.0 320.0 3.0"

$ns at 3.0 "$n3 setdest 271.0 340.0 3.0"

$ns at 3.0 "$n4 setdest 236.0 382.0 3.0"

$ns at 3.0 "$n5 setdest 234.0 275.0 3.0"

$ns at 3.0 "$n7 setdest 234.0 175.0 3.0"

$ns at 3.0 "$n8 setdest 135.0 282.0 3.0"

$ns at 3.0 "$n9 setdest 197.0 195.0 3.0"

$ns at 3.0 "$n10 setdest 153.0 175.0 3.0"

$ns at 3.0 "$n11 setdest 334.0 275.0 3.0"

$ns at 3.0 "$n12 setdest 301.0 232.0 3.0"

$ns at 3.0 "$n13 setdest 264.0 425.0 3.0"

$ns at 3.0 "$n14 setdest 294.0 242.0 3.0"

$ns at 3.0 "$n15 setdest 264.0 225.0 3.0"

$ns at 3.0 "$n16 setdest 220.0 292.0 3.0"

$ns at 3.0 "$n17 setdest 197.0 240.0 3.0"

$ns at 3.0 "$n18 setdest 222.0 374.0 3.0"

$ns at 7.9 "$n8 label T"

$ns at 7.9 "$n7 label T"

$ns at 4.0 "$n9 label source"

$ns at 4.0 "$n1 label Destination"

$ns at 4.9 "$n9 label Hello"

$ns at 9.2 "$n9 label Hello"

$ns at 5.5 "$n0 label Attacker"

$ns at 5.9 "$n0 label Hello"

$ns at 6.9 "$n3 label Fine"

$ns at 7.2 "$n11 label A"

$ns at 7.9 "$n10 label T"

$ns at 7.2 "$n12 label A"

#Setup a TCP connection

set tcp1 [new Agent/TCP]

$ns attach-agent $n9 $tcp1

set sink1 [new Agent/TCPSink]

$ns attach-agent $n6 $sink1

set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

$ns at 4.1 "$ftp1 start"

$ns at 6.9 "$ftp1 stop"

#Setup a TCP connection

set tcp1 [new Agent/TCP]

$ns attach-agent $n6 $tcp1

set sink1 [new Agent/TCPSink]

$tcp1 set packetSize\_ 1500

#Setup a FTP Application over TCP connection

set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

$ns at 4.1 "$ftp1 start"

$ns at 6.9 "$ftp1 stop"

#Setup a TCP connection

set tcp1 [new Agent/TCP]

$ns attach-agent $n0 $tcp1

set sink1 [new Agent/TCPSink]

$ns attach-agent $n1 $sink1

$ns connect $tcp1 $sink1

$tcp1 set packetSize\_ 1500

$ftp1 attach-agent $tcp1

$ns at 4.1 "$ftp1 start"

$ns at 6.9 "$ftp1 stop"

#Setup a TCP connection

set tcp1 [new Agent/TCP]

$ns attach-agent $n0 $tcp1

set sink1 [new Agent/TCPSink]

$ns attach-agent $n3 $sink1

$ns connect $tcp1 $sink1

$ftp1 attach-agent $tcp1

$ns at 6.1 "$ftp1 start"

$ns at 7.0 "$ftp1 stop"

#Setup a TCP connection

set tcp1 [new Agent/TCP]

$ns attach-agent $n9 $tcp1

set sink1 [new Agent/TCPSink]

$ns attach-agent $n8 $sink1

$ns connect $tcp1 $sink1

$tcp1 set packetSize\_ 1500

set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

$ns at 8.4 "$ftp1 start"

$ns at 9.0 "$ftp1 stop"

#Setup a TCP connection

set tcp1 [new Agent/TCP]

$ns attach-agent $n8 $tcp1

set sink1 [new Agent/TCPSink]

$ns attach-agent $n1 $sink1

TCP connection

set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

$ns at 8.4 "$ftp1 start"

$ns at 9.0 "$ftp1 stop"

$ns at 0.0 "$ns trace-annotate \"Node creation...\""

$ns at 2.0 "$ns trace-annotate \"Network formation...\""

$ns at 4.0 "$ns trace-annotate \"Select the source and destination...\""

$ns at 4.9 "$ns trace-annotate \"send message to destination...\""

$ns at 5.5 "$ns trace-annotate \"attacker attack n0...\""

$ns at 5.9 "$ns trace-annotate \"Attacker modify the message content...\""

$ns at 7.0 "$ns trace-annotate \"Found trust node and Attacker node...\""

proc finish {} {

global ns tracefile namfile

$ns flush-trace

close $tracefile

close $namfile

exec xgraph delay &

exec xgraph pdr &

exec xgraph Throughput &

exec xgraph Throughput1

exit 0

}

for {set i 0} {$i < $val(nn) } { incr i } {

$ns at $val(stop) "\$n$i reset"

}

$ns at $val(stop) "$ns nam-end-wireless $val(stop)"

$ns at $val(stop) "finish"

$ns at $val(stop) "puts \"done\" ; $ns halt"

$ns run